PROJECT THRIVE

Individualized Intervention to Foster Social, Emotional and Self-Related Functions in Primary Programs Volume II

Principal Investigators
ANDREW BIEMILLER
MERLE RICHARDS

This research project was funded under the Ministry of Education, Ontario.
It reflects the views of the authors and not necessarily those of the Ministry.

The Honourable Sean Conway, Minister

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A.B.

M.R.

INTRODUCTION

Project Thrive was an outgrowth of longitudinal research on three groups of children first identified by their kindergarten teachers as "thriving according to your goals"; "making average progress"; or "not as yet thriving" in 1978. Follow-up studies of these children in 1980 and 1982 have indicated that while there were a number of individual changes, overall these three groups of children continued to differ in both academic and intellectual performance, as well as in four of five major teacher-rated characteristics: self direction, persistence distractability, risk taking and social skill. A fifth characteristic, reactivity, has consistently been associated with tests and other ratings at the time of each rating, but has not remained associated with kindergarten "thrive" status over the four year interval. In most cases, prediction of children's academic performance or other characteristics over periods of time is substantially improved when teacher-rated, non-academic characteristics are taken into account. Details are presented in Biemiller, 1983.[1]

Project Thrive had two major objectives:

(1) refinement of measurement techniques used in the longitudinal study with samples that were not constrained by preselection of "thriving ... etc." children and from a broader range of children[a] plus validation against independent observations; and

(2) development, in collaboration with teams of teachers from different school boards, of strategies for accommodating classroom programs to children's individual differences in the rated areas as well as academic skills; helping children adapt to necessary classroom demands; and examination of the usefulness of these strategies in terms of rated, observed and teacher-reported changes over the year.

This volume of the report will focus on the research findings. Volume II will describe problems and effective strategies as seen by the teachers and project staff. It should be emphasized at this point that no one-to-one correspondence of "problems" or "differences" and classroom strategies exists. Rather, a number of strategies appear to be effective for a variety of problems.

The first part of this volume will include chapters on: (1) the children and boards involved; (2) measures developed and used; (3) concurrent relationships between measures; (4) relationships between measures over the year; and (5) relationships between teachers' perceptions of "thriving" and measures over the year. The second part of this volume will concern itself with perceived types of problems, relationships between problems, thrive

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a The longitudinal study was conducted with all Catholic, mostly rural children.

status, various measures in both fall and spring, and prediction ofproblems not identified in the fall using fall tests and ratings.

Before turning to the empirical data which will comprise most of this volume, a few observations on the construct of "thriving" and the role of social, emotional and self-related functioning would be useful. The use of "thriving" as defined here was introduced by Elizabeth Prescott[2] in a study of the effects of different types of day care programs. She found that children identified as "thriving", "average" and "non-thriving" by their day care teachers differed markedly in a number of ways, including impact on adults, getting along well with children, enjoying teacher-set activities, effective social skills -- the ability to negotiate with children and adults, and co-ordination. "Thrivers", of course, were on the positive side of these characteristics while "non-thrivers" were on the negative side.

In the longitudinal research which inspired this study, thrivers identified in kindergarten have consistently out-performed average and non-thriving children on measures of language, mathematics and reading skill; and received higher ratings on teacher ratings of social skills, self direction, persistence and risk-taking through Grade 4. Differences have been larger for the group identified at age 5 (senior kindergarten) than age 4, suggesting that some characteristics affecting later performance become more observable at age 5. However, patterns have been similar in both groups.

The persistent association of characteristics other than traditional intellectual and skill measures with both later academic performance and even more with later perceptions of thriving by teachers is consistent with a growing body of literature concerning temperamental characteristics, self-management and social skills. This literature largely has its roots in the work of Lois Barclay Murphy on coping and vulnerability[3,4]; Meichenbaum[5], Mischel[6], and others on self direction; Thomas and Chess on temperament[7,8]; and Rutter[9] and Garmezy[10] on factors contributing to surviving poor environments. All of these writers see intellectual capacity as a factor in successful functioning in school and society. However, each has identified other characteristics that also contribute to successful developmental outcomes -- in part through the interaction of the child's impact on the people around him/her and their consequent treatment of the child; and in part through individual differences in what Murphy[4] calls "vulnerability" -- a tendency to be overwhelmed by emotions, to lose self control; and "resilience" -- the ease with which self control is regained.

For educators, the net result of these differences is quite simply that some children find the school environment more congenial than others -- they are better adapted by nature, nurture and culture to meet the demands and limitations of schools. For these more fortunate children (by no means always the most intellectually endowed)[11], schooling is an easy and generally pleasant experience. For those less well "adapted" to school demands and limitations, schooling works less well -- or we could say the child functions less well in school.

SOME EXAMPLES INCLUDE:

- the child who is expected to solve social problems (or not create them) -- but cannot;
- the child who is expected to manage time, to organize his activities as the teacher expects, but is unable to sustain either the teacher's plans or his own;
- the child who is expected to resist distraction in inherently distracting surroundings[a] but does not;
- the child who is expected to accept and attempt the challenges of unmastered tasks demanded by the school, at the rate demanded by the school -- but finds these either too little or too much.

These and many other instances of mismatches between school demands or expectations and children's ways of responding illustrate the kinds of failures of adaptation by children -- and perhaps failures of accommodation by children's universal environment, the school -- which contribute to less than optimal functioning and development in children.

To repeat then -- the purposes of the present study were to examine techniques whereby teachers might become more aware of differences in children which affect their performance and behaviour; and to develop with teachers ways of both accommodating classroom environments to children's differences and helping children adapt to the demands of classroom environments.

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[a]Philip Jackson has noted that school classrooms are the most crowded environments most of us ever experience for extended periods of time[12].

CHAPTER ONE

CHILDREN AND BOARDS

Project Thrive was conducted with 470 children in senior kindergarten (128), Grade 1 (177) and Grade 2 (165). Twenty-four teachers from four school boards participated. With the exception of one board[a], three teachers (k, 1, 2) from each of two schools in each board were selected in consultation with board primary consultants and the teachers themselves. Groups of three teachers were chosen not in order to avoid selecting teachers with particular talents or problems, but rather to achieve a range of teacher abilities and styles.

The four boards selected included one from a suburban-rural area, one from a small city, one from a middle-sized city, and one from a large city. Two boards were chosen from the Roman Catholic school system, two from the public school system. There were considerable differences in both the formal curriculum policies of the boards and the implementation of curriculum as we observed it.

We shall refer to the four Boards of Education as A, B, C and D. Boards A and B were relatively traditional in the types of classroom environments and teaching styles encouraged, especially in Grades 1 and 2. Teachers were highly directive, with many whole-class activities led by the teacher. It should be emphasized that most of these teachers were also warm, cheerful and friendly in their relationships with their children. However, their controlling influence was always evident.

In Boards C and D, half the Grade 1 and 2 classrooms were set up on a partially or wholly activity-centred basis. Children did not have assigned desks, but instead used facilities appropriate to each activity. The other Grade 1 and 2 classrooms in these boards also provided substantial space for activity centres with the exception of one Grade 2 classroom.

Schools chosen reflected a wide range of socio-economic backgrounds. Schools in Board A drew on working and lower-middle class neighbourhoods. In Board B, one school drew on a largely working class neighbourhood in a rural area (although many parents commuted to a large city 50 miles away) while the other drew on an ethnically diversified middle class neighbourhood. The one participating school in Board C drew on a largely working class neighbourhood. In Board D, one school was in a predominantly upper class neighbourhood, while the other was in a highly ethnic working class neighbourhood. Teachers' reports from

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a In one board, all six teachers came from one school.

all schools, with the exception of the middle class school in Board B and the upper class school in Board D, indicated that some parents were under severe economic pressure due to unemployment and separation.

A more detailed description of kindergarten, Grade 1 and Grade 2 programs in the study follows.

(a) Kindergarten: Although equipment and materials varied somewhat in kind and abundance, all our classrooms contained many attractive play materials. The kindergartens were organized into centres. These were equipped with both structured and unstructured materials and many opportunities were provided for child-chosen and child-directed activities, which occupied about one-fifth to three-quarters of the school time. Teacher-directed activities such as music, snack, show-and-tell, story reading, library and gym periods, cleanup and some group activities or readiness work occupied about half the time in five of the eight kindergartens, and 80 per cent in one. In the two Board C classrooms, teacher-directed activities took only about 25 to 30 per cent of school time. This is consistent with their general free-play approach.

In spite of these differences, the kindergarten teachers all evidently agreed on the importance of play in children's development and the need for learning. Even in classrooms where considerable time was devoted to teacher-directed activities, care was taken to involve and interest all the children and to make their school day pleasant and rewarding. Avoidance of harsh discipline or scolding, and positive encouragement were evident in all the kindergartens.

All the teachers structured the kindergarten environment to provide for a balanced curriculum, although not all insisted that each individual child should make balanced choices. In some classes no constraints were placed on the child's decisions; in others, children were required to visit certain centres -- or all of them -- each week. In most of the classes readiness activities appeared more frequently toward the end of the year and were eagerly chosen by many of the children.

Evaluation, in all the kindergartens, was based on teacher observations and evaluation of work samples. Anecdotal reports were kept of children's development and progress. None of the teachers viewed academic learning as essential for success in kindergarten, placing social learning and play highest on their list of priorities.

Use of the classroom equipment, availability of time for self-chosen activities, and adaptability of materials were the distinctive differences among the teachers. The Board C kindergarten teachers provided free choice for all but a few minutes of in-class time each day. No restrictions were placed on use of materials, and "borrowing" from different centres was encouraged as a means of providing for integrated learning. Except for a brief group time, all activities were child chosen and child-directed. However, except for cut-and-paste activities, materials and centres tended to remain static throughout the year, with little adaptation to changing interests,

skills and learnings of the children. On the whole, the climate here was laissez-faire with most teacher-pupil interactions initiated by the children.

All the other kindergartens had much more scheduled time and more group activities. They also involved more teacher decision-making and initiatives. This was balanced, however, by a much more varied and responsive provision of learning materials and centres. As a result, all the kindergarten classes were moderately open in style.

(b) **Grade 1**: The Grade 1 classroom settings varied far more than the kindergartens. Although all were equipped with a wide variety of manipulatory materials, art and craft supplies, and games, their use and the time spent with them reflected the individual teachers' styles and that of their schools rather than some general view of what Grade 1 should be like.

Three of the Grade 1 classrooms were organized into centres, while the other five were more traditional, with individual pupil desks and activity centres around the periphery. These arrangements were reflected in the time-table; in classrooms with desks, teacher-led lessons or seat-work occupied most of the day, with children free to use activity centres after completing their work. The exception was a Board C class where, in addition to the above pattern, half of the morning and half the afternoon was devoted to child-chosen play or reading.

In the three centre-based classrooms (two in Board D, one in Board C), teacher-led group lessons took much less time. In one, teaching was theme-based, with children completing a variety of activities as required, but working at their own pace and choosing the order of their tasks -- many of which required the co-operation of two or more children. A contract was initialled by the teacher as each item was finished.

In the second centre-based classroom, lessons and assigned work were minimal at the beginning of the year with much stress on co-operative play and social development. Academic work increased after Christmas as the children became interested in reading and writing. Although all the children were engaged in some number and reading activities each day, teaching was chiefly on an informal and individualized basis, with large-group sessions for discussion, stories and singing.

The third centre-based Grade 1 was an open program, with child-chosen activities for most of the day. Except for daily group periods, the only teacher-determined assignment was that each child should write something every day.

Although the classes varied greatly in amounts of independent activity, teacher direction and free time, some features were common to all. All the teachers encouraged children to play with others, to participate in group activities such as singing and show-and-tell, and to acquire general skills and knowledge through discussion. Routines such as opening exercises were used to help develop skills in counting, telling time and date, understanding and using vocabulary related to the weather, the seasons, family and

school customs, and so on. Moreover, in even the least open classrooms, the teachers took care to schedule work periods so as to permit most children to finish their assignments and have time for self-chosen activities -- although in three of the classes, such playtime rarely lasted more than 20 minutes at a time.

Perhaps the most outstanding feature of the Grade 1 classes was the accent on literacy. In the traditional classrooms formal reading groups and related assignments took much of the morning, in addition to library periods, story-time and individual reading. Similar reading groups were also used in the theme-based classroom, not necessarily however as part of the theme. In the other two classes, where reading was on an individual basis, the prestige of this activity was obvious; these teachers spent much time reading with children or listening to them read and much less time participating in other play activities. Reading was both a prestige activity and a way of getting teacher attention.

In four of the traditional classrooms mathematics lessons were taught either to the whole class or in formal groups. Counters and other manipulatory materials were widely used; in one class the children had constant access to Cuisenaire rods, which they used easily and comfortably. Most of these classes also had workbooks or worksheets for each child, sometimes paced individually. The Board C class mentioned previously used self-paced math workbooks as the basis for the program. In the three "open" classrooms, mathematics was incorporated into other activities; in the first as part of the theme contract and in the second on an individual basis. In the third classroom mathematical reasoning was expected to develop through the children's experience with the materials and toys in their classroom environment, and mathematics instruction was not scheduled.

The classrooms fell into two distinct groups. The centre-based classrooms and the Board C "traditional" classroom provided more pupil choice, integration of subject areas, free time, and reduced large-group teaching. Evaluation in these classrooms included less use of tests and more teacher observation, although in all the Grade 1 classes work samples and performance were evaluated daily.

(c) **Grade 2**: The Grade 2 classes, like the Grade 1s fell into two groups, with three classes being more open and five less so -- although the differences were not as pronounced as they were in the Grade 1s. All the classes were focused on the acquisition of academic skills and knowledge, and with one exception included formal instruction in reading using traditional "ability" groups. Teacher-directed mathematics lessons and assigned seat-work were usual in six classrooms, while one teacher employed self-pacing math workbooks for her class.

Seven of the eight classrooms were set up with pupil desks, where the children were expected to remain while doing assigned work. In the other classroom, the room was organized into centres, where the children could choose their activities, pace and procedures. This was the only Grade 2 class where the "basics" could be learned through self-chosen activities. In this class, a chart was used to keep track of pupil

activities and to ensure, when necessary, that a balanced curriculum was engaged in by the children. Some regularly assigned activities, such as story-writing and mathematics practice, were done on an individual and self-paced schedule. Of the eight Grade 2 classrooms, this one had the richest provision of learning materials, the greatest breadth of choice of learning activities and integration of subject areas, and the most evident promotion of pupil decision-making and self direction of learning.

The concern for pupil choice was shared, however, by the two Board C teachers, who provided guaranteed time daily (25 per cent and 50 per cent of the day respectively) for self-chosen, self directed activity. Although officially designated as "environmental studies", this period was universally referred to as "playtime", and was so used by the teachers and children.

During this time the teachers, who otherwise played a traditional directive role, adopted a responsive, non-initiating stance, offering support, encouragement and assistance where required, but otherwise using this period for observation and unobtrusive evaluation. Because they valued spontaneous play at the most important source of learning, the teachers seldom intervened to shape or influence the direction of the children's activities, and it was not always evident to an outsider that the play experience was as rich or exciting to the children as it might have been with some adult mediation or participation.

The other Grade 2 teachers were quite traditional in their use of time, lessons and seat-work assignments. Although their classrooms had activity centres, they were to be used only after the completion of assigned work, and in three classes no special provision was made to ensure free time for all pupils. Moreover, in three classes children were assigned to particular centres, although they could use them as they wished. In these classes, art activities were taught in whole-class lessons, and except for cut-and-paste were not usually available at the activity centres.

Evaluation in all the classes was mainly by daily work samples. In the three most open classes, teacher observation was also important, while the other teachers gave informal tests or quizzes. With one exception, all the teachers maintained a very cheerful, positive classroom climate, refraining from harsh criticism or humiliating remarks in front of others. No matter how directive their teaching, their relationships with the children were warm, flexible and responsive.

Although we have described marked differences in teacher styles and classroom environments, it is worth emphasizing at this point that we have found no reason to believe that specific teaching styles or classroom layouts guaranteed more accommodating classrooms. The relationships of the teachers with each child, effects of combinations of children, and flexibility of teachers in responding to child differences and modifying program requirements had more impact on overall classroom mood (positive or negative) and success in accommodating to children's needs than did the immediately observable aspects of teacher style and classroom layout. This point is discussed in more detail in Volume I.

CHAPTER TWO

MEASURES DEVELOPED AND USED

Four main types of formal measures were used in this study: (1) standardized achievement tests; (2) teacher ratings of a variety of children's characteristics; (3) observations by observers not familiar with the classroom who then filled out rating forms similar to the teachers; and (4) interviews with children in half the classrooms concerning their social and activity preferences and nominations of socially skilled children. The first two types of measures were given in both the fall and the spring. The third was conducted in January and February. The fourth was carried out in April. In addition, some children were re-rated in January and given additional cognitive, vocabulary and reading tests.

In this chapter the standardized tests will be briefly described. The origins, analysis and final forms of teacher rating scales will be given. Observer ratings and interviews will be described.

Standardized Tests[a]

The Metropolitan Achievement Test (M.A.T.) scales for word knowledge and mathematics computation were administered in the fall (Primary I for Grade 2) and spring (Primary I for Grade 1, Primary II for Grade 2). The CIRCUS "How much and how many" test[13] was used in kindergartens, based on prior experience in the longitudinal study indicating that this test could be successfully administered to kindergarten children. After initial problems with the M.A.T. Primary I, this test was also used with Grade 1 children in the fall.

Teacher Ratings

One of the main purposes of the empirical component of Project Thrive was refinement of rating scales. This process took several forms.

The scales we began with were derived from several sources during the longitudinal studies. Eight four-item scales were adapted from Thomas and Chess' temperament scales[14]; a social abilities scale developed by longitudinal project staff, and a self direction scale also developed by longitudinal project staff were used. Some modifications and additions to these scales were made in response to suggestions by participating teachers and by Project Thrive staff.

Fall and spring rating items were subjected to separate factor analyses. Varimax analyses performed on all analyses indicated the presence of five major dimensions in the available data (not restricted to complete cases). Frankly, the five dimensions required some interpretation as loadings, factor orders, etc., varied somewhat across grades.

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a No tests were administered to children in one board as a result of board policy.

Nonetheless, dimensions were identified as shown in Figure 1. Subdimensions appeared in some scales (e.g., A1, etc.,) based on their appearance in different main factors in the fall or spring data, failure to form a full dimension (kindergarten only), or apparent content differences (see D1, D2 and D3). In some cases, two "scales" appeared on one factor. Items composing the five scales are shown in Figure 1.

FIGURE 1

RATING SCALES DERIVED FROM FACTOR ANALYSIS

Variable A
SELF DIRECTION

1	2	3	4	5	9
Hardly ever	Occasionally	About half the time	Often	Almost always	Not Applicable

Variable A1 FREE TIME IN CLASS

1. Child chooses an activity independently. 1 2 3 4 5 9

2. Child is able to initiate productive activity (e.g., project). 1 2 3 4 5 9

3. After choosing an activity or project, child can plan and carry it through to completion with a minimum of adult supervision. 1 2 3 4 5 9

Variable A2 SELF CONFIDENCE

4. When confronted with a new situation involving new skills, does the child make a good effort to try?

1	2	3	4	5
never or almost never	rarely	sometimes	fairly often	nearly always or always

5. When the child does not succeed quickly at a given task, what is her/his usual reaction?

1	2	3	4	5
very negative may throw a tantrum, unlikely to try again	negative self confidence lower the next time he approaches the task	no reaction doesn't seem to care, may or may not try again	positive, not upset but somewhat more determined to succeed next time	very positive very determined and confident next time

6. Make a general assessment of the child's approach to most situations:

1	2	3	4	5
not confident at all	not confident very often	varies	often confident	always very confident

Variable A3 ACADEMIC ROUTINES

7.	On own initiative child makes use of dictionary, other learning aids.	1 2 3 4 5 9
8.	When given a choice in academic work periods, child can choose appropriate work with minimum, of adult direction (e.g., book to read, math work, writing).	1 2 3 4 5 9

Variable A4 TEACHER-SET TASKS

9.	Child carries out teacher-set task (e.g., runs errand, delivers message, helps another child).	1 2 3 4 5 9
10.	Child follows instruction for seat work with a minimum of adult assistance.	1 2 3 4 5 9
11.	Given an assignment at his or her level of ability, child can complete it in a reasonable amount of time.	1 2 3 4 5 9

Variable B
RESISTANCE TO DISTRACTION

1	2	3	4	5	9
Hardly ever	Occasionally	About half the time	Often	Almost always	Not Applicable

1. If child's activity is interrupted he/she tries to go back to activity. 1 2 3 4 5 9

2. When working, this child seems to tune out distractions. 1 2 3 4 5 9

3. Child is easily drawn away from his/her work by noises, something outside the window, another child's whispering, etc. 1 2 3 4 5 9

4. Child quickly becomes impatient with a task he/she cannot grasp and goes on to something else.

5. During free play, child will stick to any one activity for only a short time. 1 2 3 4 5 9

6. If other children are talking or making noise while teacher is explaining a lesson, this child remains attentive to the teacher.

7. This child is easily sidetracked. 1 2 3 4 5 9

Variable C
SOCIAL ABILITIES

1	2	3	4	5	9
Hardly ever	Occasionally	About half the time	Often	Almost always	Not Applicable

1.	Child accepts leadership appropriately (i.e., co-operatively, can follow another's lead when appropriate).[a]	1	2	3	4	5	9
2.	Successfully gets the attention of other children in a pleasant, acceptable way (by moving toward, standing or sitting near, touching, calling to, showing something, telling something).	1	2	3	4	5	9
3.	Successfully uses other children as a resource (seeks information, explanations, or judgements; seeks help with equipment, etc.).	1	2	3	4	5	9
4.	Successfully gets the attention of an adult in a pleasant, acceptable way (by moving toward, standing or sitting near, touching, calling to, showing something, telling something).	1	2	3	4	5	9
5.	Successfully uses an adult as a resource (seeks information, explanation, or judgements; in peer disputes seeks help with equipment, clothes, etc.).	1	2	3	4	5	9
6.	The child successfully uses negotiation to resolve a conflict with another child.[a]	1	2	3	4	5	9
7.	The child is concerned about the needs and feelings of others.	1	2	3	4	5	9
8.	Child helps others in a pleasant way (without insisting).[a]	1	2	3	4	5	9
9.	Child joins a group already playing without disrupting the group or its activity.[a]	1	2	3	4	5	9
10.	When with other children, this child seems to be having a good time.	1	2	3	4	5	9

[a] These items were used for the spring ratings.

Variable D
RESISTANCE TO FRUSTRATION

1	2	3	4	5	9
Hardly ever	Occasionally	About half the time	Often	Almost always	Not Applicable

Variable D1 RESPONSE TO FRUSTRATION

1.	When playing with other children this child argues with them.	1 2 3 4 5 9
2.	Child becomes easily upset when he/she loses a game.	1 2 3 4 5 9
3.	Child complains to teacher about other children.	1 2 3 4 5 9
4.	Child lets other children know when he/she does not like something by yelling or fighting.	1 2 3 4 5 9
5.	When child can't have or do something he/she wants, child becomes annoyed or upset.	1 2 3 4 5 9

Variable D2 CLASSROOM MANAGEMENT ROUTINES

6.	Child takes responsibility for care and storage of materials and equipment.	1 2 3 4 5 9
7.	Child follows behaviour guidelines without being reminded.	1 2 3 4 5 9
8.	Child follows procedures for special events (e.g., library, field trips, fire drill).	1 2 3 4 5 9

Variable D3 CLASSROOM SELF CONTROL

9.	Child is able to sit quietly for a reasonable amount of time (as compared to classmates).	1 2 3 4 5 9
10.	Child sits still when a story is being told or read.	1 2 3 4 5 9
11.	Child seems to have difficulty sitting still, may wriggle a lot or get out of seat.	1 2 3 4 5 9

Variable E
RISK-TAKING

1	2	3	4	5	9
Hardly ever	Occasionally	About half the time	Often	Almost always	Not Applicable

Variable E1 TEACHER-GUIDED GROUP SITUATIONS

1.	During teacher-guided group activity the child participates in activities as part of the group.	1	2	3	4	5	9
2.	During teacher-guided group activity the child answers questions when called on.	1	2	3	4	5	9
3.	During teacher-guided group activity the child will address the whole group (e.g., show and tell, etc.)	1	2	3	4	5	9
4.	Child will get up and perform before the class (sing, recite, etc.) with no hesitation, even the first time.	1	2	3	4	5	9

Variable E2 NEW SITUATIONS

5.	Child gets involved immediately in new learning situations.	1	2	3	4	5	9
6.	Child is shy with adults he/she doesn't know.	1	2	3	4	5	9
7.	If initially hesitant about entering into new games and activities, child gets over it quickly.	1	2	3	4	5	9
8.	Child will initially avoid new games and activities, preferring to sit on the side and watch.	1	2	3	4	5	9

As a further check on the validity of the scales and subscales identified in the first factor analysis, a second Varimax factor analysis was run using scales and subscales identified in the first analysis plus available academic test data. These analyses yielded three factors in each grade. In Grades 1 and 2, essentially the same structure appeared, with (1) self direction (2) resistance to frustration (3) risk-taking consistently appearing as orthoganal (i.e., independent or uncorrelated) factors. Two other scales, (4) social abilities and (5) resistance to distraction, did not appear as orthoganal factors. Resistance to distraction was associated with both self direction and resistance to frustration; while social abilities was associated with resistance to frustration and risk-taking.

Kindergartners showed the same resistance to frustration and risk-taking factors. However, while the self direction scale formed a clear factor in the fall, it was replaced by a social abilities factor in the spring, with self direction subscales partly associated with the risk-taking factor. For kindergartners, one of the four self direction subscales, A3, concerning academic routines, was inappropriate in content and was dropped from the analysis. The remaining subscales have not clearly formed a separate scale.

Results of these factor analyses are shown in Tables 2-1A, 2-1B and 2-1C in Appendix A.

Simple correlations between scales were also calculated. These are shown in Tables 2-2A, 2-2B and 2-2C in Appendix A. It is clear that the rating scales, which were not weighted according to the factor analysis, are certainly not purely "independent". This point will be discussed further in Chapter Three on the "thrive concept".

All teacher rating results in this study are calculated using the scale items based on the factor analyses. In most cases, the same items were available in fall and spring. However, mathematical adjustment of temperament items was necessary as fall temperament scales used seven point responses while simple five point responses were used in the spring[a].

The final teacher-rating scales consist of:

Self Direction -- a rating compromising independent initiation and self-direction in "free-time" periods (A1), self confidence (A2), and ability to carry out routines (A3) and teacher directions (A4) with a minimum of assistance.

Resistance to Distraction -- high scores on this scale reflect a tendency to continue and complete tasks while low scores reflect a high level of distractability. This characteristic is highly correlated with self direction, but differs from it in being more highly associated with resistance to frustration and less highly associated with risk-taking than is self direction.

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a These were adjusted by the following equation: $(\text{New Value}) = 4\left[\frac{\text{old value} - 1}{6}\right] - 1$

Social Abilities -- this scale reflects abilities to get along with, make use of, negotiate with, help, and enjoy other children and adults. (Interestingly, an item concerning "leading" other children consistently did not correlate highly with other items in this scale.) High scores on this scale are associated with resistance to frustration and risk-taking.

Resistance to Frustration -- the core of this scale are low scores on Thomas and Chess' "negative mood" (D1). Strongly associated with low scores on negative mood are high scores on items regarding following behavioural (as opposed to academic) routines in the classroom (D2), and the ability to keep still on demand (D3)(D3 items are from Thomas and Chess' "activity level" scale). The association of these three subscales suggest that children who do not follow behavioural limits and expectations, and who wiggle a lot also cannot restrain negative outbursts. This scale is associated with high ratings on resistance to distraction and social abilities.

Risk-Taking -- this scale contains two parts -- willingness to speak up or perform in a group (E1) and willingness to approach new tasks and people (E2) (Thomas and Chess' "approach/withdrawal" scale). High scores are associated with self direction and social abilities.

Observer Ratings -- in January, observers who had previously not been involved in work with teachers in the classes they were to observe conducted one-day observations of the behaviour of eight target children. These children were selected to reflect a cross-section of the teacher's thrive ratings. After observing for one day, the observers rated the children using three point scales. Results are shown in Table 2-3 in Appendix A. The results are unimpressive. In a more recent, more intensive study[a], observers rated children after several days of observation and some substitute teaching. Substantially higher correlations were obtained.

These are shown in Table 2-4 (Appendix A). This indicates that the relatively lower levels of agreement reported in Table 2-3 (Appendix A) are more attributable to observer's lack of exposure to the children than to continuing disagreement with the teacher's perceptions.

Teachers' Thrive Rankings. After completing ratings in both the fall and the spring, teachers were asked to rank children in their class according to the criterion of "thriving according to your goals." All did so, and only one (from Board C) pointed out that there could be a number of independent dimensions of "thriving". Ties (or multiple groupings) were allowed. Thrive ranks were adjusted for class size by calculating percentiles using the equation:

$$1 - \frac{\text{rank}}{\text{number in class}}$$

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a Study conducted in five classrooms at the Institute of Child Study as part of an Ontario Ministry of Education sponsored project on teacher expectations. The same observers were used in both studies.

This equation yielded high percentiles for children perceived as "thriving" and low percentiles for children not perceived as "thriving". For some purposes, thrive ranks were divided in quartiles -- highest 25 per cent, next highest 50 per cent, etc.

Summary. The measures derived specifically for this study show a reasonable degree of replicability over the time (with the possible exception of kindergarten). Observers who have had some chance to become familiar with children give children similar ratings to those reported by teachers. There is less agreement with children's self-reports.

Ratings of this type act as a lens to help teachers focus information they already have about children as a result of observations, looking at their work and, probably, opinions they have formed about children. The next chapter will be concerned with the relationships between teacher-rated child characteristics and school performance, prediction of both performance and rated characteristics over one year, and relationships between all these measures and teacher's perceptions of "thriving".

CHAPTER THREE

RELATIONSHIPS BETWEEN TEACHER RATED AND TEST MEASURES AND THE CONCEPT OF THRIVING

The purpose of this chapter is twofold. First of all, it will examine which teacher rating scales are strongly associated with tested academic skills, and what combinations of teacher rated characteristics are best associated with test scores. This examination is concerned with concurrent relationships in both fall and spring as well as longitudinal relationships in the prediction of spring test scores and teacher ratings from fall test scores and teacher ratings. Secondly, this chapter will explore relationships between thrive rankings and other variables and relate them to the concept of thriving.

Tables 3-1A and 3-1B, accompanied with a qualitative discussion, reinforces the earlier longitudinal studies [1,2], that combinations of test and teacher-rated characteristics combine to yield stronger correlations with academic variables than do academic variables or any single rating by itself. To this extent, findings based on the Thrive selected sample of the longitudinal study are replicated here with more random samples. However, no particular pattern of variables can be identified which maximizes concurrent predictions at all grade levels studied.

With regard to the predictions of May academic test scores (mathematic computation and word knowledge) and teacher ratings from October tests and ratings, Tables 3-3A through 3-5C indicate: fall test scores are generally less effective predictors of spring test results and teacher ratings; patterns of relationships between measures are similar to concurrent relationships; and the overall pattern of available results suggests substantial (but hardly complete) longitudinal stability. (Note: Specific interpretations of data accompany their respective tables in Appendix A).

As described in Chapter Two, teachers were asked to rank their children in terms of "thriving according to your goals" in both October and May. These ranks were converted to percentiles within classes and used as scores in Tables 3-6 and 3-7. This data, with its supporting text, produces results which are consistent with the picture of "thriving" that emerged from the longitudinal study. To extrapolate a bit, most teachers value children who can concentrate on tasks, and follow instructions (a large part of what the "self direction" scale really covers). In all grades, they also value social abilities (although this declines in importance in Grade 2). Resistance to frustration is seen as less important in their perception of thriving, although as we shall see in Chapter Five, this plays an important role in the perception and identification of problems.

It is interesting to note that while some children had similar thrive ratings in the fall and spring, others showed marked declines or increases. In order to examine this phenomenon, a five-category scheme was developed including:

Consistent non-thrivers: (in lowest 25 per cent in both fall and spring)
Shift to non-thrive: (shifted from higher fall rating to lowest 25 per cent in spring)
Middle half: (in middle 25 per cent to 75 per cent in both fall and spring)
Shift to thrive: (shifted from lower fall rating to highest 25 per cent in spring)
Consistent thrive: (in the highest 25 per cent in both fall and spring)

Tables 3-8A, 3-8B and 3-8C show fall and spring thrive ratings, test scores and ratings by thrive change categories for each grade. The main conclusions are summarized with these tables in Appendix A, but generally, teachers identification of fall thrivers and non-thrivers was fairly accurate. However, a number of children perceived to be functioning at more average levels in the fall either improved markedly or slipped markedly during the year. This emphasizes the importance of not forming conclusions too quickly about children, and also shows that teachers were, on the whole, willing to reverse their impressions of children during the year.

CHAPTER FOUR

PREDICTING PROBLEMS

During the fall, one-day meetings were held in each board to discuss any classroom problems the teachers had encountered and to work jointly in developing strategies for dealing with them. A total of 124 children were identified as being of concern in one way or another.

Before these discussions, the teachers had spent another full day making behavioural ratings (here represented by the self distraction, resistance to distraction, resistance to frustration, risk-taking, and social abilities scales), and ranking children in terms of thriving.

Children identified as problems were more likely to receive low scores on rating measures and/or to have low thrive rankings. However, there were many children with similarly low scores or thrive rankings who were not identified as problems in the fall. These children were operationally defined as having scores on three or more of the behaviour ratings that were at or below the average of "non-thrivers" in the longitudinal study or who were in the lowest 25 per cent of thrive rankings. These children, not identified as having problems in the fall, were noted as "control" children. Table 4-1 (Appendix A) shows levels of ratings used to identify these children.[a]

During the school year, additional children were noted at meetings and in individual conferences as having difficulties. At the end of the year, we reviewed all children with difficulties, and then asked if there were any others who had been problems to the teacher. All children so mentioned after the October meeting were identified as "later developing problems". We then compared early problems, later problems, and non-problem children, noting to what extent the "control" children, identified by October ratings, actually turned out to have problems, how their academic performance compared, and what their spring ratings looked like. Results of these analyses are shown in Tables 4-2 (showing fall rating data) and 4-3 (showing spring outcomes).

Table 4-2 (Appendix A) shows the similarity in ratings between early problem children and control children. Table 4-3(Appendix A) shows that the incidence of problems among control children was nearly as great as among children identified in October. Only in Grade 2 did identifications based on behaviour ratings and thrive ranks point to a significant number of children who did not in fact later develop problems as seen by the teacher.

Academically, both problem groups were about half a grade level lower in reading than the no-problem group. No differences appeared in mathematics. Thus the importance of this identification technique appears greater for social-emotional difficulties than for academic problems.

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a Slightly different scales were used at that time. Values reported are based on the revised analysis of longitudinal data.

CHAPTER FIVE

CLASSIFICATION OF PROBLEMS AS SEEN BY TEACHERS

A problem classification scheme was developed by Merle Richards and its reliability was checked with project staff. Two members of the project staff worked jointly on problem classification until they were able to agree on all problems. A list of definitions of individual focus (single child) problems is given in Table 5-1. (More detailed discussions of these problems and strategies used with them is available in Volume I.)

Table 5-1

Categories of Problems

A. Health	
Health	All health problems which affect the pupil's learning or development (e.g., heart defects, hearing loss, colds causing frequent absence, obesity), or the organization of the classroom program (e.g., haemophilia necessitating unusual safety precautions).
B. Non-Social Skills	
Immaturity	General lack of development as compared with classmates; intellectual lag due to inadequate background experience or stimulation.
Motor Skills	Problems of coordination, large or small-muscle control.
Language	Developmental lags in language acquisition, an inadequate range of verbal skills in comparison with the peer group, speech defects or difficulties, and ESL situations.
Academic	Difficulties experienced in understanding or performing academic work accomplished by classmates or age-group.
C. Social Skills	
Adult	
Adult: Active Negative	Deliberate rudeness, defiance or disobedience to adults.

Social Skills (cont'd)

Adult

Adult: Passive Negative	Non-compliant, withdrawn, uncommunicative behaviour, "spaced out", unresponsive demeanor.

Peer Active

Peer: Aggressive	Hitting, bullying, fighting.
Peer: Bossy	Bossy, meddlesome behaviour.
Peer: Leads Trouble	Incites others to misbehave.
Peer: Follows Inappropri-ately	Follows the example of others who misbehave.
Peer: Disruptive	All other behaviours which disturb other children or disrupt their activities.

Peer Passive

Peer: Passive	Appearing lone or apart from other children; lack of social skills, inability to relate to other children.

D. **Self Direction**

Self Confidence	Poor or undeveloped self image, sense of failure, lack of self esteem as learner or social being, excessive need for reassurance.
Initiative	Inability or reluctance to choose a task when choice is given, selecting only known or familiar activities, avoiding risk.
Behavioural Routines	Failure to comply with customary classroom procedures such as lining up, listening silently to announcements, putting away equipment, responding when called, waiting for attention.
Academic Routines	Problems related to "work habits", such as starting or completing assignments, participating in groups, using centres, listening and responding.

Table 5-1 (cont'd)

	Managerial Routines	Difficulty in understanding or following routines such as those related to use of supplies, getting permission, moving from centre to centre or around the school.
E.	**Emotional**	
	Unhappy	Dejected, sad appearance; lack of spirit or happiness, crying.
F.	**Miscellaneous**	
	Miscellaneous	Wearing glasses, twin dependance, stealing, short attention span, giftedness, etc.

The most frequent problem in all grades and boards was "self confidence". Next most frequent were two types of problems with peers: inability to relate to peers, and non-aggressive disruptive problems. Of similar frequency were two types of academic problems: difficulties in understanding work, and difficulties in organizing and completing work. The frequency of these and other problems is listed in Table 5-2(Appendix A).

Comparing grades, kindergartners were more frequently reported to have peer problems, while academic problems became more common in Grades 1 and 2. Table 5-3 shows the relative order of incidence of more common types of problems (5 per cent or more children) in each grade.

There were some differences in the overall rate of problems identified in different boards (A highest, C lowest), and in the types of problems commonly identified (Table 5-4 Appendix A). However, Table 5-5 (Appendix A) demonstrates that among problems identified in 10 per cent or more of children overall, there were fairly minor variations among boards. Some additional problems occurred for five per cent or more children in particular boards. Teachers in Board C, who identified fewer problems, nonetheless retained the approximate order seen in other boards.

Summary

Twenty types of problems were identified and placed into the following categories: constitution, non-social skills, social skills and behaviour, self direction and self confidence, emotional, and miscellaneous. The distribution of problem types was similar in each grade. Self confidence problems accounted for 15 to 25 per cent of problems in each grade and board. Otherwise peer problems were more common in kindergarten and Grade 1 while academic problems became more common in Grades 1 and 2. Teacher ratings discriminated children with problems from children with no problems, but did not differentiate between types of problems.

CHAPTER SIX

CLASSIFICATION OF STRATEGIES USED BY TEACHERS FOR DEALING WITH PROBLEMS

Table 6-1 describes categories of strategies used with individual problems. Again, more detailed definitions are available in Volume I.

Table 6-1

Categories of Strategies for Dealing with Problems

Modify Physical Environment	
Modified physical setting	change seat, isolate, remove, sit with teacher
Work in another class	to other class for particular subject or for opportunity to help younger children
Program Content	
Individualized or group program content or organization	creation of an additional group (e.g., reading) or setting (e.g., manipulative play, judo, science centre work jobs, computer, etc.), alternative activities (e.g., draw, block construction, use oral skills), modify setting expectations (e.g., insist on completing task, contract system, appoint as leader), content changes (e.g., new book, Montessori materials)
Co-operative games	one child "shadows" another, attention to dominance in groups
Teach-Modify Child	
Direct instruction in routines or skills	encourage specific strategies (e.g., think before acting), reminders (routines, rules), talk out problems and discuss alternatives, various ways of making child more aware of own actions and teacher expectations
Work with aide	work with regular teacher's aide, parent volunteer, older child
Behaviour modification (positive reinforcement)	use of specific rewards for specific behaviours, often on a timed basis and always with awareness of conditions required for reward
Logical consequences (natural reinforcement)	removing or banning misused equipment or centres, leave room until under control, etc.
Group discussion of rules	group discussion to help individual child see consequences of actions on others, and find strategies for child and group to deal with undesired behavior
Teacher/Child Relationship	
Increased pupil-teacher contact	increased teacher attention to particular child, increased physical contact, patience and acceptance, praise

Table 6-1 (cont'd)

Teacher/Child Relationship (cont'd)	
Positive teacher-pupil interaction, encouragement	positive reinforcement, encouragement to (many specific behaviours)
Avoidance of criticism or reprimands, modified expectatations	ignore dawdling, change teacher attitude, avoid pressure, stop reprimanding (specific behaviours), frequently combined with encouragement
Non-Intervention	
Deliberate non-intervention	no specific action taken regarding a problem, waiting and watching for maturation, change
Do not regard as a problem	decision by teacher that a concern is not really a problem
Parents	
Parent involvement	discuss problem with parent, request specific action by parent (e.g., not mentioning race, avoiding labelling, over-protection, etc.), co-ordinated action by teacher and parent (e.g., re stealing), daily report home, lower parent concerns re progress
Remove/Refer	
Removal to another class	transfer child to another class either permanently or for instruction or to help
Referral	any referral to professionals (doctor, psychologist, social worker) for examination or recommendation for special assistance (e.g., reading, clinic, speech therapy, etc.) or provision of extra class assistance
Miscellaneous	
Enriched kindergarten program	stressing various aspects of existing kindergarten program (e.g., puppets, extra direction, wide range of experience, sharing, etc.)
Miscellaneous	miscellaneous
Demand quality work or effort	firm expectations (e.g., speak clearly, work complete and well done, etc.)

The most commonly used strategy in all grades was a modification to the child's curriculum content or organization (e.g., read alone with teacher, new activity, book, etc.). Next most common were changes in two aspects of the teacher-child relationship: increasing the amount of contact, and emphasizing encouragement. Other common strategies (used with 10 to 14 per cent of children) were direct instruction, discussing the problem with parents, and referral to special services (Table 6-2 Appendix A).

Comparing grades, the overall distribution of strategies used is very similar in the three grades. Kindergarten teachers were less likely to modify the physical setting (children do not have fixed places). Direct instructional strategies for individual problems became less common by Grade 2 as did deliberate non-intervention. Overall, however, the three grades were remarkable for their similarities, rather than their differences (Table 6-3 Appendix A).

Board rates of strategy use reflected their differences in identifying problems -- most in Board A, least in Board C. All except Board C used program change most commonly. Otherwise the relative order of use of common strategies varied from Board to Board (Tables 6-4, 6-5 Appendix A).

Summary

Twenty-two types of strategies were used by teachers to deal with problems they identified. These were grouped into the following categories: modification of the physical environment, program content, teaching or modifying the child, teacher-child relationship, deliberate non-intervention, work with parents, remove or refer, other. The relative use of strategies was similar in the three grades with program changes being the most frequent type of strategy. Although program change was used most frequently in three of the boards, the order of use of strategies otherwise varied widely. Indeed, there are more differences between boards in strategies used than in problems identified.

CHAPTER SEVEN

APPLICATION OF STRATEGIES TO PROBLEMS

On average, slightly more than three strategies were tried per child with a problem. Table 7-1 (see Appendix A) shows percentages of different strategy applications for each problem. In examining these applications overall, the major finding is that particular strategies are not primarily applied to particular problems. In no case is anything like a majority of strategy applications for a particular problem limited to three or four strategies. Instead, for most problems, the distribution of strategy applications is approximately what would be expected on the basis of the overall distribution of strategy applications. (Only 31 of a possible 360[a] combinations of problems by strategies occurred at higher or lower percentages than could be expected at the .10 level of significance on the basis of the overall distribution of strategies.)

Analysis of strategy applications **grade** yields the same general conclusion (Appendix B). While there are a few differences in the overall rate of strategy applications by grade (see Table 6-2 on strategies by grade). There are no systematic differences in the application of strategies to specific problems. (Except, of course, for the use of "enriched kindergarten programs" in kindergartens!)

When strategy applications by Board are examined, similar results are found. There are differences between Boards in the distribution of strategy applications. However, within each Board, the distribution of strategies on each question is, again, about what would be expected by chance (Appendix C).

The nature and implications of Board differences in strategy applications will be discussed in the next chapter.

Summary

In general, the various strategies were applied to particular problems according to their overall distribution -- in other words, there was no evidence of particular strategies being preferred for particular problems.

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a Eighteen strategies X 20 problems = 360 combinations. Two strategies occurred so rarely that they are not included in this computation: **Working in other classes** and **changing classes**.

CHAPTER EIGHT

INDIVIDUAL DIFFERENCES IN SOCIAL, EMOTIONAL AND SELF-RELATED FUNCTIONING AND THEIR IMPLICATIONS FOR EDUCATIONAL ACHIEVEMENT

This project grew out of previous studies indicating that teacher ratings of children's classroom characteristics could identify and predict both academic achievement and future behavioural ratings of children's behaviour. The purposes of this project were to refine the rating scales of children's characteristics, and to work with teachers to improve ways of dealing with classroom problems.

Working with a total of 24 kindergarten, Grade 1, and Grade 2 teachers and 470 children, we refined previously-used teaching rating scales into five dimensions:

Self Direction -- independent initiation and self direction in "free time" periods plus the ability to carry out routines and teacher directions with a minimum of assistance.

Resistance to Distraction (related to but not identical with self direction) -- tendency to continue and complete tasks.

Social Abilities -- getting along with, making use of negotiating with, helping, and enjoying other children and adults.

Resistance to Frustration -- not demonstrating negative moods, following behavioural routines, and keeping still on request.

Risk-Taking -- willingness to speak up in groups and willingness to approach new tasks and people.

All five of these teacher-rated dimensions are correlated with each other and with teachers' overall perceptions of children's "thriving" or "not thriving".

Relations with Academic Achievement

The Self Direction scale is most highly correlated with mathematics and reading achievement, both at the end of the school year, and predictively -- from fall ratings to spring tests (correlations around .50, plus or minus .10, for both concurrent and predictive correlations).

Combinations of ratings and tests increase predictions from about 25 to about 35 per cent of variance over the year. Generally, fall test scores do not increase prediction of spring test scores by more than two or three per cent above predictions from ratings.

The frequency of classroom problems, including problems with skills, social problems, self direction problems and others could be predicted in a general way from behavioural and thrive ratings. However, specific types of problems could not be predicted. In other words, low ratings indicated an increased risk for "problems", but not what the problem was likely to be. Consequently, it would not be possible to use these ratings to develop preventive strategies to avoid problems.

Many strategies for dealing with problems were used by teachers, including: modification of program content, direct instruction or direct techniques for changing children's behaviour, efforts to change the teacher-child relationship, bringing parents into the situation, modification of the environment, deliberate non-intervention, and others. In general, program change, direct instruction, and efforts to change teacher-child relationships were used most frequently in all grades. However, there was considerable variation among the four boards in the order of strategies used.

Consistent with the conclusion that specific problems could not be predicted (and hence preventive action taken) was the observation that no particular strategies were associated with particular problems. Rather, strategies tended to be applied to particular problems in the approximate proportions that they were used overall. There were a few exceptions to this, but no more than would be expected by chance.

Thus it appears that strategies for dealing with problems were selected either on the basis of the details of specific situations, or alternatively on the basis of being a preferred strategy of an individual teacher or board practice. Volume I of this report contains details of successful strategies applied to specific instances of each type of problem. It is clear from the data that this detailed case approach is more likely to generate insights about solving classroom problems than are statistical generalizations about relationships between problems and strategies for solving them.

In conclusion, this study has replicated and extended previous findings regarding teacher-rated behavioural characteristics of children which relate to school achievement and behavioural outcomes. However, examination of classroom problems indicates that the ratings do not predict specific problems, but only the incidence of problems in general. Strategies employed by teachers to deal with problems are not associated with specific types of problems. This suggests that preventive techniques or "early identification" may be less useful than careful attention to individual children's current functioning and immediate situation. For illustrations of effective strategies for specific problems, see Volume I of this report.

FOOTNOTES

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APPENDIX A

STATISTICAL TABLES

Introduction to Statistical Tables

Research means "finding out". Two important considerations of scientific research include: the practice of finding answers to questions using empirical methods which could be used by others, and the responsibility of being aware of the limits to which the answers we find can be generalized. Since Volume II of Project Thrive focuses on research findings, it is important at this point to explain briefly the statistical procedures utilized in this study.

The data available in Appendix A represents the culmination of information obtained through empirical investigation. In most of the following tables, we are interested in illuminating the relationships between different measures or characteristics. Correlational research on relationships between different capacities, skills, emotional characteristics and behaviour is often a first step in understanding the nature of individual differences in abilities or behaviour. It is important to remember, however, that establishing that two characteristics are associated does not prove that one causes the other. Either variable may affect the other, or both may be influenced by a third variable. Correlational findings are helpful in providing suggestions for further study of the nature and causes of individual differences, as well as being useful for establishing the validity of measures. (In this regard, the usefulness of Vol. II is more apparent in the latter case).

In order to describe relationships between measures, an index of association called a "correlation coefficient" is utilized. Coefficients can range from +1.00 to -1.00. Values near +1.00 indicate a positive correlation where high ratings of one variable are associated with high ratings of another. Values near -1.00 mean high ratings of one variable are associated with low ratings of another. For practical purposes, correlations below about +.30 represent quite low levels of association.

While it is true that correlation coefficients represent only estimates of the actual relationship between measures in the populations sampled, various methods are used to ensure as much accuracy as possible. For example, statistical procedures can be applied which indicate the probability that observed results could have occured by chance. These are known as inferential statistics and lead to "statistical significance levels". The statistical significance of correlation coefficients refers to the possibility that no relationship exists between the two measures which have been correlated. Stating that a given correlation is statistically significant at the .05 level, means that the observed correaltion would not occur by chance more than one time out of 20 if the true correlation between the measures in the population sampled was zero.

Two types of common but complicated statistical procedures were used in this study and are reflected in some of the tables found in Appendix A. These procedures deserve special attention in that they are familiar only to people who have had some background in the study of statistics.

i) Varimax factor analysis is an accepted procedure to simplify a collection of correlations in order to release a meaningful pattern of variables. A rotation of the original axis will maintain the integrity of the data while altering the factor loadings such that the patterning of variables is obvious. This process is analogous to a photographer adjusting his camera focus to gain a sharper picture of his subject without affecting the subject itself.

In this regard, Varimax analysis is used in data reduction by constructing a new set of variables on the basis of interrelations exhibited in the data (i.e., the refinement of items in the teacher evaluation rating scales). The first Varimax analysis indicated the presence of five major dimensions of teacher rated characteristics (see Figure 1, p.11). To validate these scales, a second analysis yielded three factors in each grade. Tables 2-1A, 2-1B and 2-1C illustrate each independent factor. Fac.I represents a high loading of items associated with "Self Direction". Fac.II is associated with "Resistance to Frustration" and Fac.III is associated with "Risk-Taking".

ii) Multiple regression analysis is a general statistical technique through which one can analyze the relationship between a dependent variable and a set of independent or predictor variables. In some cases, part of the variation in the dependent variable (e.g., test scores) can be explained in terms of a high correlation with a particular independent variable (e.g. Self Direction). Multiple regression, enables a research to "control" for that variable so that the importance of other, less obvious relationships can be uncovered. Tables 3-1A through 3-2B illustrate correlations between teacher rated characteristics and test scores in October. The highest correlations are with Self Direction and Resistance to Distraction. However, multiple regression analyses also indicate that Thrive Ratings, Social Skills, Resistance to Distraction and Self Direction play an important role in children's academic performance.

The purpose of this introduction is to provide the reader with an understanding of empirical techniques for assessing and describing children's development and to caution the reader not to be too ready to accept all "scientific" findings at face value. I do not mean to imply that we should reject or avoid methods of objective assessment or scientific efforts to imporve our understanding of development and influences on it. It is my conviction that responsible professional work with children demands valid objective assessments of children and their environments wherever possible. I believe that if we are to imporve the quality of our work with children, in terms of increasing their skills and facilitating their emotional development, we who work with children must improve the objectivity with which we assess both children and the results of our work with them. At the same time, we must constantly be aware of the limitations of the information we have and obtain about children. The "facts" that we have, both about general patterns of development and even more about individual children, are for the most part blurry and imprecise. We must always be prepared to admit to errors and inaccuracies in our judgements and assumptions.

Table 2-1A

Factor Analysis of
Kindergarten Teacher Rating Scales

Fall - N=89
Spring - N=62

	A Fac. I Fall	D Fac. II Fall	D Fac. II Spring	E Fac. III Fall	E Fac. III Spring	C Fac. IV Spring
Thrive Rating	.66	.04	-.38	.39	.69	.09
Math	.56	-.17	-.51	.10	.21	-.09
A. (Self Dir.)	a	a	a	a	a	a
A1	.69	-.22	-.56	.33	.36	.33
A2	.37	-.07	-.21	.65	.69	.20
A4	.69	.00	-.49	.19	.56	.26
B. (Resis. Distr.)	b	b	-.88	b	.30	.16
C. (Soc. Abil.)	.58	-.16	-.31	.42	.32	.89
D. (Resis. Frus.)	-.53	.83	.94	.12	.16	-.26
D1	-.25	.91	.60	.15	.36	-.13
D2	-.76	.49	.80	.15	-.20	-.25
D3	-.67	.64	.92	.03	-.07	-.13
E. (Risk-Taking)	.16	.07	.09	.98	.97	.22
E1	.27	.03	-.05	.90	.92	.26
E2	-.01	.10	.26	.91	.97	.15

a. Combined self direction scale not computed for kindergarten.

b. Not available due to computer problems.

Table 2-1B

Factor Analysis of
Grade 1 Teacher Rating Scales

Fall - N=125
Spring - N=92

	A Fac. I		D Fac. II		E Fac. III	
	Fall	Spring	Fall	Spring	Fall	Spring
Factor #	2	1	3	2	1	3
Thrive Rating	.51	.74	-.36	-.28	.48	.26
Math(MAT)	-.06	.64	-.19	-.02	.03	.15
Reading(MAT)	a	.62	a	-.10	a	.26
A. (Self Dir.)	.78	.87	-.27	-.33	.53	.33
A1	.90	.80	.04	-.21	.18	.10
A2	.33	.81	-.42	-.24	.54	.28
A3	.66	.73	-.30	-.41	.40	.38
A4	.56	.80	-.29	-.29	.61	.34
B. (Resis. Distr.)	b	.54	b	-.60	b	.01
C. (Soc. Abil.)	.20	.22	-.60	-.74	.49	.54
D. (Resis. Frus.)	-.47	-.22	.87	.96	-.08	-.07
D1	-.26	-.01	.88	.88	-.02	.03
D2	-.66	-.30	.58	.85	-.14	-.16
D3	-.48	-.36	.75	.81	-.09	-.10
E. (Risk-Taking)	.16	.43	-.05	-.11	.97	.87
E1	.27	.51	-.08	-.17	.87	.79
E2	-.02	.25	.00	.00	.91	.89

a. Not available for fall data.

b. Not available due to computer problems.

Table 2-1C

Factor Analysis of
Grade 2 Teacher Rating Scales

Fall - N=87 Complete Cases
Spring - N=170 Complete Cases

	A Fac. I		D Fac. II		E Fac. III	
	Fall	Spring	Fall	Spring	Fall	Spring
Factor #	1	1	3	2	2	3
Thrive Rating	.64	.74	-.18	-.28	.12	.11
Math (MAT)	a	.56	a	.03	a	.27
Reading (MAT)	a	.55	a	-.22	a	-.05
A. (Self Dir.)	.80	.82	-.36	-.35	.44	.44
A1	.67	.62	-.22	-.35	.44	.46
A2	.60	.75	-.40	-.28	.48	.44
A3	.86	.78	-.27	-.37	.27	.31
A4	.68	.69	-.38	-.33	.36	.33
B. (Resis. Distr.)	a	.72	a	-.58	a	.12
C. (Soc. Abil)	.34	.25	-.23	-.78	.36	.43
D. (Resis. Frus.)	-.38	-.28	.92	.95	.05	.04
D1	-.10	-.10	.93	.82	.06	.09
D2	-.41	-.35	.75	.77	-.02	-.13
D3	-.63	-.49	.56	.73	.06	.06
E. (Risk-Taking)	.21	.35	.08	-.12	.96	.93
E1	.44	.49	.04	-.23	.80	.73
E2	-.07	.06	.09	-.09	.94	.84

a. Not available due to computer problems.

Table 2-2A

Kindergarten Correlations Between Scales
(Fall data above diagonal, Spring below diagonal)

Fall - N=89
Spring - N=62

	Thrive	Math	A 1	A 3	A 4	B	C	D	E
Thrive Rating	X	.48	.54	.49	.56	.52	.57	.25	.48
Math (Circus)	.42	X	.45	.15	.35	.52	.33	.45	.21
A1 Free Ch.	.48	.23	X	.56	.57	.58	.53	.51	.41
A3 Self Conf.	.67	.14	.54	X	.50	.75	.47	.16	.66
A4 Teach. Dir.	.55	.30	.62	.46	X	.31	.52	.35	.25
B. Resis. Distr.	.39	.49	.58	.29	.45	X	.36	.75	.17
C. Soc. Abil.	.44	.12	.49	.48	.53	.29	X	.42	.49
D. Resis. Frus.	.26	.41	.50	.15	.40	.83	.25	X	.09
E. Risk-Taking	.56	.15	.33	.69	.55	-.03	.57	.14	X

Table 2-28

Grade 1 Correlations Between Scales
(Fall above diagonal, Spring below diagonal)

Fall - N=125
Spring - N=92

	Thrive	Math	Reading	A	B	C	D	E
Thrive Rating	X	.13	a	.76	.60	.56	.58	.56
Math (MAT)	.53	X	a	.02	-.08	.20	-.10	.00
Reading (MAT)	.61	.50	X	a	a	a	a	a
A. Self Dir.	.80	.59	.64	X	.73	.56	.64	.61
B. Resis. Dist.	.56	.27	.34	.65	X	.31	.68	.24
C. Soc. Abil.	.51	.23	.35	.59	.38	X	.65	.55
D. Resis. Frus.	-.46	.18	.26	.53	.78	.68	X	-.21
E. Risk-Taking	.57	.39	.49	.69	.36	.60	.29	X

a. No fall reading test.

Table 2-2C

Grade 2 Correlations Between Scales
(Fall above diagonal, Spring below diagonal)

Fall/Spring - N = 89

	Thrive	Math	Reading	A	B	C	D	E
Thrive Rating	X	.33	.53	.60	.62	.30	.40	.26
Math (MAT)	.43	X	.35	.36	.40	.01	.16	.22
Reading (MAT)	.61	.18	X	.45	.41	a	.10	.33
A. Self Dir.	.72	.59	.46	X	.81	.47	.59	.53
B. Resis. Distr.	.67	.45	.49	.83	X	.48	.68	.31
C. Soc. Abil.	.48	.16	.35	.65	.67	X	.33	.42
D. Res. Frus.	.46	.17	.32	.55	.74	.74	X	-.02
E. Risk-Taking	.41	.41	.19	.70	.45	.52	.19	X

Table 2-3 Correlations Between Observers' Ratings and Teacher Ratings in Feb. 1982

A1 Free Time	A2 Self Confid.	A3 Acad. Routine	B(part) Resis. Distr.	C(part) Peer Abilities	D1 Neg. Mood	D2 Class. Rout.	D3 Activity	E1 Perf. Group	A4 Teachers Tasks
.10	.00	.37	.57	.16	.22	.28	.41	.71	.51

Table 2-4 Correlations Between Observers' Ratings and Teacher Ratings in Jan. 1983

Grade	A Self Direction	B Resistance to Distraction	C Social Ability	D Resistance to Frustration	E Risk-Taking
Kindergarten	.89[a]	.80	.84	.88	.94
Grade 1	.71	.55	.81	.76	.71
Grade 2	.71	.76	.64	.75	.83

[a]Sample = 14 children in each grade with one observer.

Table 3-1A

Correlations Between Fall Teacher Ratings and Tests

Table 3-1A shows low to moderate correlations between teacher ratings and test scores in October. The highest correlations are with self direction and resistance to distraction. The very low correlations with the Grade 1 math scores may reflect a "ceiling" effect--the CIRCUS test was very easy for many of the children while the Primary I math computation test was too hard.

		Teacher Ratings				
Grade & Test	(N)	Self Direc.	Resis. to Distrac.	Resis. to Frustr.	Risk-Taking	Social Ability
Kindergarten math(Circus)	(89)	.45[a]	.52	.45	.21	.33
Grade 1 math (Circus)	(125)	.00	-.08	.11	.05	.26
Grade 2						
math comp.(MAT)	(89)	.37	.40	.16	.22	.01
word know.(MAT)	(89)	.45	.41	.10	.33	.22

[a]A1 used here.

Table 3-1B

Correlations Between Spring Teacher Ratings and Tests

Table 3-1B shows similar results in May but with slightly higher correlations between rated self direction, resistance to distraction and test scores (Grades 1 and 2). While for the most part, correlations with other scales are lower, as is to be expected given their content and focus, multiple regression analyses indicate that these variables also play a role in children's academic performance.

Teacher Ratings

	(N)	Self Direc.	Resistance to Distrac.	Resistance to Frustr.	Risk-Taking	Social Ability
Kindergarten						
math (Circus)	(62)	.23[a]	.49	.41	.15	.12
Grade 1						
math comp.(MAT)	(92)	.59	.27	.18	.39	.23
word know.(MAT)	(92)	.64	.34	.26	.49	.35
Grade 2						
math comp.(MAT)	(89)	.59	.45	.17	.41	.16
word know.(MAT)	(89)	.46	.49	.32	.19	.35

[a]Subscale A1.

Table 3-2A

Fall Test Variance Associated with Combinations of Teacher Ratings, Thrive Ratings and Tests

Tables 3-2A and 3-2B report the results of step multiple regression analyses. A "step" multiple regression analysis asks the question: "given variance associated[a] with variables already determined (starting with the highest simple correlation) which variable then is associated with the most additional variance?" Tables 3-2A and 3-2B indicate clearly that substantial additional test variance is associated with several variables when the highest associated with variables when the highest correlates are taken into account. In the fall, resistance to distraction, general thrive ratings, and social skills appear frequently in the equations. In the Spring, self direction usually always appears first. Other variables vary by grade.

Grade & Test	Total Variance Assoc.	Contributing Variables: First Variab.	Second Variab.	Third Variab.	Others
Kindergarten		Res.Dist.	Thrive	Resis.Frus.	
math (Circus)	65%	(27%)	(4%)	(2%)	(31%)
Grade 1		Soc.Ab.	Self D.	Thrive	
math (Circus)	13%	(7%)	(3%)	(2%)	(1%)
Grade 2		Res.Dist.	Read	Soc.Ab.	
math comp.(MAT)	27%	(16%)	(4%)	(4%)	(3%)
		Thrive	Risk-T.	Math	
word know.(MAT)	39%	(29%)	(4%)	(3%)	(3%)

a Note that "variance associated" = the square of the correlation. Thus a correlation of .50 reflects 25 per cent common variance. The second highest correlate will not necessarily be the next largest correlate in multiple regression since the next highest correlate may be highly correlated with the highest correlate.

Table 3-2B

Spring Test Variance Associated with Combinations of Teacher Ratings, Thrive Ratings and Tests

Grade & Test	Total Variance Assoc.	Contributing Variables: First Variab.	Second Variab.	Third Variab.	Others
Kindergarten		A4	Resis.Frus.	Risk-T.	
math (Circus)	75%	(36%)	(9%)	(5%)	(25%)
Grade 1		Self D.	Read	Thrive	
math comp.(MAT)	39%	(32%)	(5%)	(1%)	(1%)
		Self D.	Math	Thrive	
math comp.(MAT)	43%	(34%)	(5%)	(3%)	(1%)
Grade 2		Self D.	Soc.Ab.	Risk-T.	
math comp.(MAT)	47%	(37%)	(8%)	(1%)	(1%)
		Thrive	Self. D.	Risk-T.	
math comp.(MAT)	42%	(33%)	(2%)	(2%)	(5%)

Academic Test Scores. Table 3-3A shows correlations between fall test and rating variables and spring test outcomes. Note that with the exception of kindergarten, higher correlations were obtained between fall self direction ratings and spring test results than between fall tests and spring tests.

Table 3-3A

Correlations Between Spring Test Variables and Fall Test and Rating Variables

Spring Variable	(N)	Fall Test and Rating Variables: Math	Reading	Self Dir.	Resis. Distr.	Resis. Frus.	Risk-Taking	Social Abilities
Kindergarten								
math (Circus)	(96)	.58	b	.37[a]	.32	.26	.30	.28
Grade 1								
math comp.(MAT)	(118)	.23	b	.50	.26	.26	.44	.41
word comp.(MAT)	(118)	.18	b	.46	.35	.24	.37	.28
Grade 2								
math comp.(MAT)	(116)	.37	.29	.51	.46	.26	.28	.06
word know.(MAT)	(116)	.40	.48	.49	.51	.22	.18	.23

[a]Subscale A1.

[b]No reading test given to non-reading children in the fall.

Table 3-3B shows the results of multiple regression analyses of fall variables used to predict spring test results. Table 3-3B indicates that in most cases the most powerful single predictor is the fall thrive ranking, while one or more fall test measures also enter into the prediction. Other variables vary. (The high degree of prediction of kindergarten performance was produced by an accumulation of small added predictions from many variables.)

Table 3-3B

Predictions of Spring Test Results from
Combinations of Fall Variables

Grade & Test	Total Variance Predicted	Fall Variables: First Variable	Second Variable	Third Variable	Others
Kindergarten					
math (Circus)	76%	math(34%)	Risk-T.(3%)	Res.Fr.(3%)	(32%)
Grade 1					
math comp.(MAT)	36%	Thrive(25%)	Risk-T.(4%)	Math(3%)	(4%)
word know.(MAT)	35%	Thrive(31%)	Math(1%)	Resis.Fr.(1%)	(2%)
Grade 2					
math comp.(MAT)	37%	Self D.(26%)	Soc.Ab.(5%)	Thrive(3%)	(3%)
word know.(MAT)	45%	Thrive(31%)	Math(5%)	Read(3%)	(6%)

Teacher-Rated Characteristics -- Tables 3-4A, 3-4B and 3-4C show correlations between spring ratings and fall measures. These tables indicate that the majority of measures show substantial over-time stability (over .70) in most grades. Test scores are generally less effective predictors of ratings. Otherwise, patterns of relationships between measures are similar to concurrent relationships.

Table 3-4A

Correlations Between Kindergarten Spring Teacher Ratings and Fall Test and Rating Measures

		Fall Test and Rating Variables						
Spring	(N)	Math	Self Dir.A1	Self Dir.A4	Resis. Distr.	Resis. Frus.	Risk-Taking	Social Abilities
Self Dir.A1	(98)	.37	.47	.20	.47	.29	.18	.36
Self Dir.A4	(98)	.35	.35	.60	a	.27	.36	.38
Resis.Distr.	(98)	.47	.42	.34	.58	.64	.37	.35
Resis.Frus.	(98)	.41	.25	.22	.05	.76	.23	.15
Risk-Taking	(98)	.27	.39	.15	.17	.37	.76	.47
Social Abil.	(98)	.34	.34	.43	.37	.20	.37	.71

a. Not available.

Highlighted correlations equal correlation of measure with itself over seven months.

Table 3-48

Correlations Between Grade 1 Spring Teacher Ratings and Fall Test and Rating Measures

Spring	(N)	Fall Test and Rating Variables: Math	Reading	Self Dir.	Resis. Distr.	Resis. Frus.	Risk-Taking	Social Abilities
Self Dir.	(180)	.15	a	.73	.50	.47	.33	.48
Resis.Distr.	(180)	.03	a	.67	.73	.65	-.24	.34
Resis.Frus.	(180)	.11	a	.53	.56	.76	.37	.52
Risk-Taking	(180)	.14	a	.47	.21	.17	.71	.46
Social Abil.	(180)	.48	a	.40	.24	.57	.44	.63

a. Reading measure not given in fall.

Highlighted correlations equal correlation of measures with itself over seven months.

Table 3-4C

Correlations Between Grade 2 Spring Teacher Ratings and Fall Test and Rating Measures

Spring	(N)	Fall Test and Rating Variables: Math	Reading	Self Dir.	Resis. Distr.	Resis. Frus.	Risk-Taking	Social Abilities
Self Dir.	(168)	.33	.41	**.71**	.73	.56	.31	.37
Resis.Distr.	(168)	.32	.42	.67	**.72**	.62	.17	.38
Resis.Frus.	(168)	.10	.13	.48	.58	**.76**	.06	.33
Risk-Taking	(168)	.19	.23	.54	.41	.20	**.51**	.36
Social Abil.	(168)	.06	.08	.55	.59	.57	.21	**.50**

Highlighted correlations equal correlation of measures with itself over seven months.

Tables 3-5A, 3-5B and 3-5C show multiple regressions over time. The overall pattern of available results suggests substantial (but hardly complete) longitudinal stability, generally with one variable providing most of the predicted variance and others contributing five to 10 per cent more.

Table 3-5A

Predictions of Kindergarten Spring Ratings from Combinations of Fall Teacher Ratings, Thrive Rankings and Tests

		Contributing Variables			
Spring Rating	Total Variance Assoc.	First Variable	Second Variable	Third Variable	Others
Self Dir.(A.1)	42%	Thrive(28%)	Resis.Dis.(5%)	Self Dir.(9%)	
Resis.Distr.	75%	Resis.Frus.(41%)	Self Dir.(34%)		
Resis.Frus.	77%	Resis.Frus.(57%)	Self Dir.(8%)	Teach.Task(7%)	
Risk-Taking	73%	Risk-Taking(57%)	Thrive(5%)	Self Dir.(7%)	(5%)
Social Abil.	81%	Soc.Abil.(56%)	T.Tasks(5%)	Self Dir.(4%)	(16%)

Table 3-5B

Predictions of Grade 1 Spring Ratings from Combinations of Fall Teacher Ratings, Thrive Rankings and Tests

Spring Rating	Total Variance Assoc.	Contributing Variables: First Variable	Second Variable	Third Variable	Others
Self Dir.	65%	Thrive(59%)	Self Dir.(5%)	Risk-T(1%)	-
Resis.Distr.	63%	Resis.Frus.(53%)	Resis.Dir.(5%)	Thrive(3%)	(2%)
Resis.Frus.	61%	Resis.Frus.(58%)	Risk-T.(2%)	-	(1%)
Risk-Taking	52%	Risk-Taking(50%)	Thrive(2%)	-	-
Social Abil.	58%	Soc.Abil.(43%)	Resis.Frus.(11%)	Resis.Dist.(1%)	(3%)

Table 3-5C

Predictions of Grade 2 Spring Ratings from Combinations of Fall Teacher Ratings, Thrive Rankings and Tests

Spring Rating	Total Variance Assoc.	Contributing Variables			
		First Variable	Second Variable	Third Variable	Others
Self Dir.	64%	Self Dir.(59%)	Resis.Dis.(3%)	Risk-T.(4%)	-
Resis.Distr.	61%	Resis.Dis.(52%)	Res.Fr.(3%)	Read(4%)	(2%)
Resis.Frus.	61%	Resis.Frus.(58%)	Soc.Ab.(1%)	Risk-T.(1%)	(1%)
Risk-Taking	39%	Self-Dir.(29%)	Risk-T.(7%)	Thrive(1%)	(2%)
Social.Abil.	52%	Resis.Dis.(37%)	Soc.Ab.(5%)	Resis.Fr.(5%)	(5%)

RELATIONSHIPS BETWEEN THRIVE RANKINGS AND OTHER VARIABLES AND THE CONCEPT OF THRIVING

Table 3-6 shows consistently high correlations between thrive rankings in fall or spring and over the year with ratings of self direction, resistance to distraction and reading test scores. In kindergarten and Grade 1, high correlations also occurred with risk-taking and social abilities. These correlations indicate that all these characteristics are associated by teachers with "thriving according to my goals".

Table 3-6

Correlations Between Fall and Spring Thrive Rankings
and Fall and Spring Tests and Ratings

Grade and Combination	Tests and Ratings							
	Thrive	Math	Read	Self Dir.	Resis. Distr.	Resis. Frus.	Risk-Taking	Social Abil.
Kindergarten								
fall X fall thr.	-	.48	a	.54[b]	.52	.25	.48	.57
spring X fall thr.	.61	.37	a	.53[b]	.40	.13	.59	.54
spring X spring thr.	-	.42	a	.48[b]	.39	.26	.56	.44
Grade 1								
fall X fall thr.	-	.13	a	.76	.60	.58	.56	.56
spring X fall thr.	.75	.51	a	.77	.61	.52	.50	.42
spring X spring thr.	-	.53	.61	.80	.56	.46	.57	.51
Grade 2								
fall X fall thr.	-	.33	.53	.60	.62	.40	.26	.30
spring X fall thr.	.72	.42	.56	.56	.56	.36	.40	.35
spring X spring thr.	-	.43	.61	.72	.67	.46	.41	.48

a. Measure not given to non-readers.
b. All.

Examination of multiple regressions associated with thrive ratings indicates that 50 to 60 per cent of the variance of thrive ratings is associated with other teacher-rated variables, and in the case of Grade 1 and 2 children, reading performance. The predominant rating variable is self direction (or resistance to distraction) except in the case of kindergarten children. There, consistent with kindergarten teachers' stated aims, social abilities and risk-taking are more important, while resistance to distraction remains a significant factor.

Table 3-7

Combinations of Variables Associated with Fall and Spring Thrive Rankings

Grade and Combination	Total Variance Assoc.	Contributing Variables: First Variable	Second Variable	Third Variable	Others
Kindergarten					
fall X fall thr.	66%	Soc.Ab.(49%)	Res.Dis.(10%)	Res.Fr.(12%)	(5%)
fall X spring thr.	a				
spring X spring thr.	50%	Risk-T.(28%)	Res.Dis.(18%)	-	(4%)
Grade 1					
fall X fall thr.	64%	Self D.(59%)	Soc.Ab.(2%)	Res.Dis.(1%)	(2%)
fall X spring thr.	57%	Thrive(57%)	-	-	-
spring X spring thr.	66%	Self D.(59%)	Read(3%)	Res.Fr.(1%)	(3%)
Grade 2					
fall X fall thr.	50%	Res.Dis.(39%)	Read(9%)	Self D.(1%)	(1%)
fall X spring thr.	57%	Thrive(51%)	Self D.(4%)	-	(2%)
spring X spring thr.	57%	Self D.(44%)	Read(8%)	Res.D.(2%)	(3%)

a. Data not available.

Tables 3-8A, 3-8B and 3-8C show fall and spring thrive ratings, test scores, and ratings by thrive change categories for each grade.

The main conclusions from these tables may be summarized as follows:

1. Consistent non-thrivers differed significantly from consistent thrivers in both fall and spring on all measures except resistance to frustration in kindergarten.

2. With two exceptions, fall tests and ratings do not discriminate clearly between "middle group" children and those who shifted into thriving or non-thriving categories. The exceptions were social abilities and word knowledge in the Grade 2 group.

3. Shifts in thrive ratings were reflected in spring test scores and ratings in Grades 1 and 2.

Table 3-8A

Kindergarten Tests and Ratings
by Thrive Change Categories
(Standard Deviations in Parentheses)

	Thrive Change Category				
	Consistent Non-Thrive	Shift to Non-Thrive	Middle Group	Shift to Thrive	Consistent Thrive
Number of Cases	19	19	49	11	12
Fall Thrive Rating	10(9)	51(21)	51(26)	53(16)	86(6)
Spring Thrive Rating	11	14	51	84	87
Fall CIRCUS Math	27(12)	29(6)	32(4)	35(3)	36(2)
Spring CIRCUS Math	31(6)	37(4)	36(4)	38(1)	37(2)
Fall choose indep[a]	3.2(0.9)	3.9(0.8)	3.5(0.9)	3.8(0.8)	4.3(0.5)
Spring choose indep[a]	3.2(0.8)	3.7(0.4)	3.7(0.7)	4.2(0.7)	4.2(0.5)
Fall teacher task[a]	2.5(0.9)	3.0(1.0)	3.1(1.0)	3.4(0.6)	4.2(0.5)
Spring teacher task[a]	3.0(0.6)	3.8(0.5)	3.5(0.6)	4.1(0.5)	4.2(0.6)
Fall Resist. Dist.	2.5(1.0)	3.4(0.9)	2.9(1.0)	3.2(1.1)	3.5(0.5)
Spring Resist. Dis.	2.9(0.8)	3.3(0.5)	3.3(0.7)	3.8(0.7)	4.0(0.4)
Fall Resist. Frus.	2.8(1.4)	3.5(0.6)	3.1(1.1)	3.1(1.2)	3.9(0.6)
Spring Resist. Frus.	3.6(0.8)	3.8(0.7)	3.8(0.7)	4.0(0.7)	4.3(0.3)
Fall Risk-Taking	3.0(1.0)	3.6(1.1)	3.5(1.1)	4.1(1.0)	4.4(0.8)
Spring Risk-Taking	2.6(0.8)	3.2(0.7)	3.3(0.7)	4.0(0.6)	4.0(0.5)
Fall Social Abil.	2.8(1.0)	3.5(0.7)	3.5(0.9)	3.5(0.6)	4.4(0.6)
Spring Social Abil.	2.9(0.9)	3.5(0.5)	3.6(0.6)	3.6(0.4)	4.2(0.4)

[a]Subscale of self direction scale. Full scale not applicable to kindergarten children.

Table 3-8B

Grade 1 Tests and Ratings
by Thrive Change Categories[a]

	Thrive Change Category				
	Consistent Non-Thrive	Shift to Non-Thrive	Middle Group	Shift to Thrive	Consistent Thrive
Number of Cases	33	20	82	13	25
Fall Thrive Rating	10(7)	46(17)	50(22)	60(13)	88(7)
Spring Thrive Rating	8(7)	13(9)	50(15)	83(6)	88(6)
Spring Word Knowl.	1.6	1.9	2.0	2.2	2.5
Spring Math Comp.[b]	10.2(6.4)	12.1(5.2)	14.3(5.0)	16.4(4.0)	19.8(4.7)
Spring Self Dir.	3.0(0.6)	3.2(0.6)	3.8(0.6)	4.3(0.6)	4.8(0.2)
Spring Resis.Dir.	2.7(0.8)	3.4(0.7)	3.5(0.7)	4.0(0.6)	4.2(0.6)
Spring Resis. Frus.	3.3(0.8)	3.4(0.9)	3.9(0.8)	4.4(0.5)	4.4(0.6)
Spring Risk-Taking	3.0(0.7)	3.0(0.6)	3.6(0.7)	4.3(0.5)	4.4(0.7)
Spring Social Abil.	3.4(0.8)	3.1(1.0)	3.8(0.8)	4.3(0.5)	4.6(0.6)

[a]Fall data not available due to computer problems.
[b]MAT Math Comput - raw score.

Table 3-8C

Grade 2 Tests and Ratings
by Thrive Change Categories

	Thrive Change Category				
	Consistent Non-Thrive	Shift to Non-Thrive	Middle Group	Shift to Thrive	Consistent Thrive
Number of Cases	22	19	71	9	23
Fall Thrive Rating	13(8)	41(14)	47(23)	52(26)	88(6)
Spring Thrive Rating	10(8)	12(8)	49(15)	88(7)	87(6)
Fall Word Knowl.[a]	2.0	2.1	2.3	2.5	
Spring Word Knowl.[b]	2.7	2.8	3.3	3.6	4.3
Fall Math Comp.[c]	19.1(4.4)	18.9(4.7)	20.4(4.1)	20.8(4.1)	23.6(2.5)
Spring Math Comp.[d]	2.2	2.7	2.9	3.2	3.3
Fall Self Dir.	3.0(0.7)	3.6(0.7)	4.0(0.7)	4.1(1.0)	4.8(0.3)
Spring Self. Dir.	2.8(0.9)	3.2(0.9)	4.0(0.7)	4.4(0.8)	4.7(0.2)
Fall Resist. Dist.	2.1(1.1)	3.1(1.3)	3.5(1.1)	3.6(1.4)	4.3(0.9)
Spring Resist. Dis.	2.7(0.9)	2.7(1.2)	3.7(0.8)	3.9(0.9)	4.5(0.3)
Fall Resist. Frus.	2.8(1.3)	3.8(1.1)	3.7(1.0)	3.7(1.2)	4.3(0.6)
Spring Resist. Frus.	3.5(1.0)	3.5(1.1)	4.1(0.8)	4.2(0.6)	4.4(0.6)
Fall Risk-Taking	3.0(1.0)	2.9(1.0)	3.2(1.1)	3.4(1.3)	3.9(1.0)
Spring Risk-Taking	3.4(0.8)	3.3(1.0)	3.8(0.8)	4.1(0.9)	4.4(0.6)
Fall Social Abil.	3.6(0.7)	3.7(1.1)	4.2(0.9)	4.6(0.6)	4.6(0.6)
Spring Social Abil.	3.3(0.8)	3.3(1.0)	3.9(0.8)	4.2(0.9)	4.3(0.7)

[a] Primary I, grade equivalent scores.

[b] Consistent thrive group at ceiling of test. Grade equivalent = 4.1 but is highly unreliable.

[c] Primary I -- no separate grade equivalents given for Math. Comp. Raw scores shown here.

[d] Primary II, Grade equivalent scores.

Table 4-1

Ratings Used to Identify "Control" Children

(Note, a child had to be at or below specified scores on 3 scales
or at the 25th percentile or below in thrive rankings
to be in the "control" group)

Social Abilities	Self Direction	Resistance to Distraction	Resistance to Frustration	Risk-Taking
3.5	3.1	2.6	3.5	3.5

Table 4-2

Predicting Problems
Fall Ranking and Rating Measures

Number of Cases and Fall Ratings	Groups: Problems Reported in Fall	Problems Predicted from Ratings but not Reported in Fall	Problems Predicted from Ratings but none Reported	No Problems Reported All Year
Thrive Score (fall)				
Kindergarten	42%	37%	-	59%
Grade 1	39%	27%	-	68%
Grade 2	41%	20%	51%	63%
Self Direction				
Kindergarten A1	3.6	3.3	-	4.0
Kindergarten A4	2.9	3.0	-	3.5
Grade 1	3.4	3.2	-	4.1
Grade 2	3.6	3.2	3.7	4.4
Resis. to Frustr.				
Kindergarten	2.8	3.2	-	3.7
Grade 1	3.1	3.2	-	3.9
Grade 2	2.8	3.1	3.9	4.1
Risk-Taking				
Kindergarten	3.7	3.0	-	4.0
Grade 1	4.0	3.8	-	4.7
Grade 2	4.5	3.8	3.8	4.8
Social Abilities				
Kindergarten	3.2	3.1	-	4.2
Grade 1	3.7	3.6	-	4.5
Grade 2	3.7	3.8	3.8	4.6

Table 4-3

Predicting Problems
Description of Four Groups and Spring Data

Number of Cases and Spring Characteristics	Groups			
	Problems Reported in Fall	Problems Predicted from Ratings but not Reported in Fall	Problems Predicted from Ratings but none Reported	No Problems Reported All Year
Number of Cases				
Kindergarten	36	31	1	36
Grade 1	50	42	0	78
Grade 2	38	33	18	77
Number of Problems (Spring)				
Kindergarten	2.4	1.9	0	0
Grade 1	2.5	1.7	-	0
Grade 2	2.2	1.9	0	0
Number of Strategies (Spring)				
Kindergarten	3.2	2.3	-	0
Grade 1	2.9	1.9	-	0
Grade 2	3.6	2.6	0.8	0
Mathematics (Spring)				
Kindergarten (Circus)	35.0	36.0	-	37.0
Grade 1 (MAT)[a]	13.3	11.8	-	16.6
Grade 2 (MAT)[b]	2.8	2.5	2.8(10 Cases)	2.8
Reading (Spring)				
Grade 1 (MAT)[b]	1.9	1.8	-	2.1
Grade 2 (MAT)[b]	2.7	2.6	(2 cases)	3.2

[a]No grade equivalent available.
[b]Grade equivalent.

Table 5-2

Percentages[a] of Children With Various Types of Problems By Grade (non-exclusive categories)

Type of Problem	Kindergarten	Grade 1	Grade 2	All[b] Grades
Constitution				
Health	4	4	3	4
Non-Social Skills				
General Immaturity	7	6	3	5
Motor Skills	2	3	1	2
Language	5	7	3	5
Academic	0	16	14	10
Social Skills & Behaviour of Adult				
Adult Active Negative	3	2	1	2
Adult Passive Negative	4	3	2	3
Peer Active				
Peer Aggressive	8	5	6	6
Peer Bossy	2	3	1	2
Peer Leads Trouble	1	1	1	1
Peer Follows Inappropriate	3	3	0	2
Peer Disruptive	10	14	8	11
Peer Passive				
Peer Passive	23	8	4	12
Self Confidence & Self Direction				
Self Confidence	18	21	15	18
Initiative	7	3	1	4
Self Direction -- Behav. Routine	6	7	7	7
Self Direction -- Academic Routine	9	16	9	11
Self Direction -- Management Routine	5	5	1	4
Emotional				
Unhappy	7	4	5	5
Miscellaneous	6	7	5	6
(Total Children)[b]	(136)	(180)	(170)	(486)

[a]

[b] Average of percentages for each Board.

Average of percentages for each grade.

Table 5-3

Comparison of Frequency of Problems by Grade
("Miscellaneous" omitted)

Frequency of Problems (per cent)	Kindergarten	Grade 1	Grade 2	All Grades
25				
24				
23	Peer Passive			
22				
21		Self Confidence		
19				
18	Self Confidence			Self Confidence
17				
16		Acad. Routine Academic		
15			Self Confidence	
14		Peer Disruptive	Academic	
13				Peer Passive
12				Academic Routine
11				Academic Routine Peer Disruptive
10	Peer Disruptive			Academic
9	Academic Routine		Academic Routine	
8	Peer Aggressive	Peer Passive	Peer Disruptive	
7	Initiative Immature Unhappy	Language	Behaviour Routine	Behaviour Routine
6	Behaviour Routine	Immature	Peer Aggressive	Peer Aggressive
5	Language Management Rout.	Peer Aggressive Management Rout.	Unhappy	Language Unhappy Immature

Table 5-4

Percentages[b] of Children with Various Types of Problems by Board
(non-exclusive categories)

Type of Problem	Board A	Board B	Board C	Board D	All Boards[a]
Constitution					
Health	5	5	1	4	4
Non-Social Skills					
General Immaturity	8	4	3	3	5
Motor Skills	4	2	0	1	2
Language	8	7	2	3	5
Academic	13	8	7	11	10
Social Skills & Behaviour					
Adult Active Negative	3	2	1	2	2
Adult Passive Negative	6	2	1	1	3
Peer Active					
Peer Aggressive	7	13	2	2	6
Peer Bossy	3	1	2	2	2
Peer Lead Trouble	1	1	0	2	1
Peer Follow Inappropriate	0	5	0	3	2
Peer Disruptive	9	13	9	15	11
Peer Passive					
Peer Passive	12	19	5	11	12
Self Confidence & Self Direction					
Self Confidence	20	23	9	20	18
Initiative	2	3	4	5	4
Self Direction -- Behav. Routine	6	11	3	6	7
Self Direction -- Acad. Routine	20	10	5	9	11
Self Direction -- Man. Routine	5	1	2	6	4
Emotional					
Unhappy	9	6	3	3	5
Miscellaneous	10	5	2	7	6
(Total Children)	(124)	(128)	(106)	(128)	(486)

[a]Average of percentages for each Board.
[b]Average of percentages for each grade.

Table 5-5

Comparison of Frequency of Problems by Board

Frequency of Problems (per cent)	Board A	Board B	Board C	Board D	All Boards
25					
24					
23		Self Confid.			
22					
21	Acad. Rout. Self Confid.				
20				Self Confid.	
19		Peer Passive			
18					Self Confid.
17					
16					
15				Peer Disrupt.	
14					
13	Academic	Peer Disrupt. Peer Aggr.			
12	Peer Passive				Peer Passive
11		Behav. Rout.		Peer Passive Academic	Peer Disrupt. Acad. Rout.
10		Acad. Rout			Academic
9	Peer Disrupt.		Self Confid. Peer Other	Acad. Rout.	
8	Immature Language	Academic			
7	Peer Aggr.	Language	Academic		Behav. Rout.
6	Behav. Rout. Adult Passive	Unhappy		Man. Rout. Behav. Rout.	Peer Aggr.
5	Health Unhappy	Peer Follows Health	Acad. Rout. Peer Passive	Initiative	Language Immature Unhappy

Brackets indicate several items at same frequency.

Relationships between some of the more common problems and behaviour ratings and test scores are shown in Table 5-6 (fall) and Table 5-7 (spring)[a]. These tables indicate that there are differences in behaviour ratings associated with problems, but that low ratings do not generally identify a particular problem. For example, lower ratings on resistance to distraction occurred for nearly all problem categories in both grades as did low ratings on self direction for all Grade 1 problems. (We did not have a single self direction scale for kindergarten.) Risk-taking did not systematically identify any of the problems, and indeed in kindergarten, some "problem" children had higher ratings.

Table 5-6

Mean Scores on Fall Behavioural Characteristics by Selected Problems

	Problems									
	Academic		Aggression		Disruptive		Self-Confid.		Acad. Rout.	
Fall Variables	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Number of Cases										
K	104	0	95	9	12	12	83	21	96	8
1	156	25	174	7	156	25	148	33	158	23
Thrive Rating										
K	48	-	48	37	46	59	48	48	48	40
1	52	24**	49	29	51	32**	53	29**	52	25**
Self Direction										
1	3.7	3.2*	3.7	3.3	3.8	3.1**	3.8	3.3**	3.8	3.0**
Resis. Frus.										
K	3.2	-	3.3	2.2*	3.4	2.0**	3.2	3.4	3.3	2.4
1	3.4	2.0	3.3	2.1**	3.5	2.1**	3.6	2.8*	2.5	2.0
**Risk-Taking										
K	3.6	-	3.6	3.4	3.5	4.3*	3.6	3.4	3.5	4.1
1	4.3	4.0*	4.3	4.4	4.3	4.0	4.4	3.9*	4.3	3.9
Soc. Abilities										
K	3.5	-	3.6	2.8*	3.5	3.2	3.9	3.2	3.5	3.5
1	4.0	3.7	4.0	3.5	4.1	3.3*	4.0	3.6*	4.1	3.2**

*p .05
**p .01

a Regrettably, as a result of problems during the change in computers at OISE, Grade 2 data was not analyzed.

Table 5-7

Mean Scores on Spring Behavioural Characteristics by Selected Problems

Fall Variables	Problems									
	Academic		Aggression		Disruptive		Self-Confid.		Acad. Rout.	
	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Number of Cases										
K	101	-	92	9	89	12	80	21	93	8
1										
Thrive Rating										
K	48	-	49	38	47	52	49	45	49	35
1	50	24**	47	29	49	27*	49	31**	49	25**
Self Direction										
1	3.9	3.3**	3.8	3.6	3.9	3.3**	3.8	3.5	3.9	3.3**
Resis. Dis.										
K	3.4	-	3.4	2.7*	3.4	2.9*	3.4	3.2	3.4	2.9
1	3.5	3.0**	3.5	2.4**	3.6	2.5**	3.6	3.1**	3.6	2.7**
Resis. Frus.										
K	3.9	-	4.0	3.1**	4.0	3.1**	3.9	3.8	3.9	3.6
1	3.9	3.6	3.9	3.1**	4.0	3.1**	3.9	3.7	4.0	3.2**
Risk-Taking										
K	3.3	-	3.3	3.4	3.2	4.0**	3.3	3.1	3.3	3.1
1	3.7	3.3	3.6	3.7	3.7	3.4	3.6	3.6	3.7	3.4
Soc. Abilities										
K	3.6	-	3.6	3.2	3.6	3.4	3.3	3.3	3.6	3.4
1	3.8	3.8	3.9	3.4	4.0	3.1**	3.9	3.9	3.9	3.4*

*p .05

**p .01

Table 6-2

Percentages of Children with Whom Various Types of Strategies
Were Used by Grade (Non-exclusive categories)
(Highlighted percentages differ significantly from "All Grades", Chi square p .10, 1 d.f.)

Type of Strategy	Kindergarten[b]	Grade 1[b]	Grade 2[b]	All Grades[a]
Physical Environment				
Modified Physical Setting	3	10	8	7
Work in Another Class	0	1	0	0
Program Content				
Indiv. or Group Program Change	19	19	16	18
Co-operative Games	3	1	0	1
Teach-Modify Child				
Direct Instruction	15	13	9	12
Work with Aide	2	4	2	3
Behaviour Modification	2	2	4	3
Logical Consequences	2	2	5	3
Group Discussion of Rules	2	1	3	2
Teacher/Child Relationship				
Increased Contact	10	14	12	12
Positive Interaction, Encouragement	14	12	12	13
Avoidance of Criticism	8	7	4	6
Non-Intervention				
Deliberate Non-Intervention	12	10	6	9
Not a Problem	7	0	1	3
Remove/Refer				
Removal to Another Class	0	1	1	1
Referral	10	8	11	10
Other				
Kindergarten Program	11	0	0	4
Miscellaneous	14	19	13	15
Demand Quality	2	2	0	1
(Total Children)	136	180	170	486

[a]Average of percentages in each grade

[b]Average of percentages in each Board

Table 6-3

Comparison of Frequencies of Types of Strategies by Grade
(miscellaneous omitted)

Frequency (per cent)	Kindergarten	Grade 1	Grade 2	All Grades
25				
24				
23				
22				
21				
20				
19	Progr. Chg.	Progr. Chg.		
18				Progr. Chg.
17				
16				
15	Dir. Instr.			
14	Pos. Interac.	Incr. Cont.	Par. Involv.	
13		Dir. Instr.		
12	Non-Inter.	Pos. Interac.	Pos. Interac.	Inc. Cont.
			Incr. Cont.	Dir. Instr.
11	Kdg. Progr.		Referral	Par. Involv.
10	Par. Involv.	Mod. Phys. Set		
	Incr. Contact	Non-Inter.		Referral
	Referral			
9		Par. Involv.	Dir. Instr.	Non-Inter.
8	Avoid Crit.	Referral	Mod. Phys. Set.	
7	No Probl.	Avoid Crit.		Mod. Phys. Set.
6			Non-Inter.	Avoid Crit.
5			Log. Consq.	

Teachers in Boards A and B modified settings more than the others (mostly moving children). Board A teachers made more use of direct instruction, avoidance of criticism, parent involvement, logical consequences, and demands for quality. Board C teachers made less use of program changes, direct instruction, encouragement (as a specific strategy for dealing with problems), and referral. However, Board C teachers more frequently decided that an unusual or annoying behaviour was "not a problem". Board D teachers used program change and encouragement strategies more frequently than others.

Table 6-4

Percentages[b] of Children with Whom Various Types of Strategies Were Used by Board (Non-exclusive categories)
(Highlighted percentages differ significantly from "All Boards" Chi square p* .10, 1 d.f.)

Type of Strategy	Board A	Board B	Board C	Board D	All Boards[a]
Physical Environment					
Modified Physical Setting	11	11	3	3	7
Work in Another Class	0	0	1	1	1
Program Content					
Indiv. or Group Progr. Chg.	20	22	4	25	18
Co-operative Games	1	3	0	0	1
Teach - Modify Child					
Direct Instruction	20	9	5	15	12
Work with Aide	3	2	3	3	3
Behaviour Modification	3	3	1	3	3
Logical Consequences	8	3	0	0	3
Group Discuss. of Rules	2	3	1	1	2
Teacher/Child Relationship					
Increased Contact	17	13	8	9	12
Positive Interaction, Encouragement	12	15	2	21	13
Avoidance of Criticism	14	5	2	3	6
Non-Interaction					
Deliberate Non-Inter.	7	6	13	12	10
Not a Problem	0	0	9	1	3
Parents					
Parent Involvement	17	15	4	12	12
Removal/Refer					
Removal to Another Class	1	1	2	0	1
Referral	17	8	3	11	10
Other					
Kindergarten Program	4	4	0	3	3
Miscellaneous	21	11	6	23	15
Demand Quality	5	0	1	0	2
(Total Children)	(124)	(128)	(106)	(128)	(486)

[a] Average percentages across Boards
[b] Average of grades in each Board

Table 6-5

Comparison of Frequencies of Types of Strategies by Board
(miscellaneous omitted)

Frequency (per cent)	Board A	Board B	Board C	Board D	All Boards
25				Progr.Chg.	
24					
23					
22		Progr.Chg.			
21				Pos.Interac.	
20	Progr.Chg.				
	Dir.Instr.				
19					Progr.Chg.
18					
17	Par.Involv.				
	Incr.Cont.				
	Referral				
16					
15		Par.Involv.			
		Pos.Interac.		Dir.Instr.	
14	Avoid Crit.				
13		Incr.Cont.	Non-Inter.		Pos.Interac.
12	Pos.Interac.			Par.Involv.	Dir.Instr.
				Non-Inter.	Incr.Cont.
11	Mod.Phys.Set.	Mod.Phys.Set.		Referral	Para.Involv.
10					Referral
9		Dir.Instr.	No Probl.	Incr.Cont.	Non-Inter.
8	Log.Conseq.	Referral	Incr.Cont.		
7	Non-Inter.				Mod.Phys.Set.
6		Non-Inter.			Avoid Crit.
5	Demand Qual.	Avoid Crit.	Dir.Instr.		

Table 7-1

Percentages of Applications of Strategies for Each Problem

(Highlighted percentages differ from the "All Grades" at the .10 level)

	Phys. Envir.		Content		Teacher/Modify Child					Teach/ Child Relationship			Non-Inter.			Par.	Removal Refer		Other			
	Mod. Setting	Work O. Class	Progr. Chg.	Co-op. Games	Dir. Instr.	Work Aide	Beh. Mod.	Log. Cons.	Gr. Discuss Rules	Incr. Contact	Positive Interac.	Avoid Crit.	Delib. Non-Inter.	Not a Problem	Parent Involv.	Chg. Class	Referral	Kindergar. Progr.	Miscellaneous	Demand Quality	No. of Prob. by Strategy Observation
Combined	6	0	13	2	9	2	2	2	3	9	9	4	5	1	10	0	7	3	11	1	1596
Const.																					
Health	7	.	15	1	8	.	1	3	3	9	4	5	3	.	11	.	12	2	12	2	72
Skills																					
Immature	3	.	16	.	4	4	.	.	1	11	10	**9**	9	.	9	.	10	5	12	.	75
Motor	5	.	5	2	11	4	.	2	2	8	6	8	2	.	16	.	**16**	4	11	2	39
Lang.	7	.	10	1	10	.	.	1	2	9	10	4	1	.	5	.	**17**	4	13	.	75
Acad.[b]	5	1	**20**	1	**5**	**4**	2	1	2	7	8	7	5	.	**9**	.	**12**	0	11	2	177

Table 7-1 cont'd

	Phys. Envir.		Content			Teacher/Modify Child			Teach/ Child Relationship				Non-Inter.		Par.	Removal Refer		Other			
	Mod. Setting	Work O. Class	Progr. Chg.	Co-op. Games	Dir. Instr.	Work Aide	Beh. Mod.	Log. Cons.	Gr. Discuss Rules	Incr. Contact	Positive Interac.	Avoid Crit.	Delib. Non-Inter.	Not a Problem	Parent Involv.	Chg. Class	Referral	Kindergar. Progr.	Miscellaneous	Demand Quality	No. of Prob. by Strategy Observation
Social																					
Adult Act.	18	.	9	3	9	.	7	0	6	7	11	2	.	.	12	.	4	.	17	.	30
Adult Pas.	2	.	10	2	3	**9**	3	0	.	7	10	2	**13**	.	5	.	7	.	15	3	39
Aggr.	**11**	.	10	2	14	.	4	4	**8**	7	7	2	**1**	.	11	.	3	2	12	1	90
Bossy	9	.	7	.	19	.	.	**8**	7	3	10	4	.	.	4	.	.	.	**25**	4	24
Lead	7	.	8	.	19	.	4	**8**	.	10	7	.	.	.	10	4	7	.	19	.	18
Follow[a]	**21**	.	11[a]	5	11	5	1	5	5	5	5	.	.	.	5	.	5	.	11	.	57
Disrupt.	**11**	.	12	.	**15**	1	3	3	5	8	6	2	3	2	12	.	8	1	12	.	168
Passive	4	2	14	3	**3**	3	.	1	1	9	12	8	7	4	12	.	8	4	7	.	135

Table 7-1 cont'd

	Phys. Envir.		Content		Teacher/Modify Child					Teach/ Child Relationship			Non-Inter.		Par.	Removal Refer		Other			
	Mod. Setting	Work O. Class	Progr. Chg.	Co-op. Games	Dir. Instr.	Work Aide	Beh. Mod.	Log. Cons.	Gr. Discuss Rules	Incr. Contact	Positive Interac.	Avoid Crit.	Delib. Non-Inter.	Not a Problem	Parent Involv.	Chg. Class	Referral	Kindergar. Progr.	Miscellaneous	Demand Quality	No. of Prob. by Strategy Observation
Self-Direct.																					
Self-Con.	**3**	.	13	2	6	1	2	2	2	11	**14**	3	**10**	1	10	.	5	3	8	2	231
Init.[c]	**0**	.	26	.	8	.	.	3	.	6	16	3	11	3	8	.	6	3	5	2	45
B. Rout.	7	.	16	2	12	.	2	2	3	10	8	4	.	.	9	2	5	4	12	2	84
A. Rout.	7	.	12	.	8	.	2	3	1	10	9	4	5	.	9	2	6	3	14	2	159
M. Rout.	2	.	9	.	**18**	2	2	**8**	2	12	3	2	**13**	.	**2**	2	2	5	19	.	45
Emotional																					
Unhappy	5	.	9	**6**	**10**	.	2	1	3	11	8	5	3	.	16	2	9	1	8	1	66
Misc	7	.	14	1	6	.	.	3	3	14	10	4	4	.	13	.	3	4	12	2	63

a. Grade 1 only
b. Grades 1 and 2
c. Grades K and 1

APPENDIX B

PERCENTAGES OF STRATEGY APPLICATIONS PER PROBLEM BY GRADES

TABLE B-1

Percentages of Strategy Applications Per Problem - Kindergarten
(Highlighted percentages differ from the "All Grades" at the .10 level)

	Phys. Envir.		Content		Teacher/Modify Child					Teach/ Child Relationship			Non-Inter.		Par.	Removal Refer		Other			
	Mod. Setting	Work O. Class	Indiv. or Group Progr. Chg.	Co-op. Games	Direct Instr.	Work Aide	Beh. Mod.	Log. Cons.	Gr. Discuss Rules	Incr. Contact	Positive Interac.	Avoid Crit.	Delib. Non-Inter.	Not a Problem	Parent Involv.	Remove to O. Class	Referral	Kindergar. Progr.	Miscellaneous	Demand Quality	No. of Applications
All Grades	6	0	13	2	9	2	2	2	3	9	9	4	5	1	10	2	7	3	11	1	1596
Kindergarten	**2**	0	14	3	10	2	1	2	**1**	7	9	5	7	**2**	10	0	5	**8**	**8**	**2**	442
Health	6	.	18	.	12	.	.	6	.	.	.	.	6	.	18	.	12	6	12	**6**	17
Immature	4	.	4	.	4	4	.	.	.	11	11	11	**15**	.	7	.	4	**15**	11	.	27
Motor	0	.	.	.	13	**13**	.	.	.	.	.	.	.	.	25	.	**25**	13	13	.	8
Language	0	.	5	.	**26**	.	.	.	5	5	11	5	.	.	5	.	**26**	**11**	.	.	19
Academic	7	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0

Table B-1 cont'd

	Phys. Envir.		Content			Teacher/Modify Child				Teach/ Child Relationship			Non-Inter.		Par.	Removal Refer		Other		
	Mod. Setting	Work O. Class	Indiv. or Group Progr. Chg.	Co-op. Games	Direct Instr.	Work Aide	Beh. Mod.	Log. Cons.	Gr. Discuss Rules	Incr. Contact	Positive Interac.	Avoid Crit.	Delib. Non-Interv.	Not a Problem	Parent Involv.	Remove to O. Class	Referral	Kindergar. Progr.	Miscellaneous	Demand Quality	No. of Applications
Adult Act.	.	.	15	8	15	.	.	.	.	8	.	8	.	.	15	.	.	.	15	.	13
Adult Pass.	7	.	13	7	.	**13**	.	.	.	7	.	7	7	.	7	.	13	.	13	.	15
Aggress.	11	.	11	4	**22**	.	.	4	.	4	4	4	4	.	11	.	7	7	7	.	27
Bossy	.	.	.		22	.	.	.	11	.	22	11	.	.	11	.	.	.	.	1	9
Leads	.	.	25	.	25	.	.	**25**	.	.	.	.	.	.	.	.	.	.	25	.	4
Follows	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0
Disrupt.	3	.	18	.	**18**	.	3	6	.	6	6	.	6	6	12	.	6	3	9	.	34
Passive	**1**	2	18	**6**	**1**	4	.	.	.	8	**15**	7	8	**6**	8	.	6	**11**	**4**	.	84

Table B-1 cont'd

	Phys. Envir.		Content			Teacher/Modify Child				Teach/ Child Relationship			Non-Inter.		Par.	Removal Refer		Other			
	Mod. Setting	Work O. Class	Indiv. or Group Progr. Chg.	Co-op. Games	Direct Instr.	Work Aide	Beh. Mod.	Log. Cons.	Gr. Discuss Rules	Incr. Contact	Positive Interac.	Avoid Crit.	Delib. Non-Interv.	Not a Problem	Parent Involv.	Remove to O. Class	Referral	Kindergar. Progr.	Miscellaneous	Demand Quality	No. of Applications
Self Conf.	**0**	.	14	5	7	.	.	.	4	7	13	5	**16**	**4**	9	.	2	**9**	**2**	**4**	56
Initiative	.	.	**30**	.	5	.	.	5	.	.	10	5	10	5	15	.	.	5	10	.	20
Beh. Rout.	.	.	18	6	18	.	.	6	.	12	.	6	.	.	6	.	.	12	18	.	17
Acad. Rout.	3	.	10	.	3	3	.	.	.	14	7	7	7	.	10	.	3	**10**	4	**7**	29
Man. Rout.	.	.	16	.	16	.	.	5	.	5	.	5	.	.	5	.	5	**16**	**26**	.	19
Unhappy	.	.	17	**13**	8	.	**8**	.	.	13	4	4	4	.	17	.	.	4	4	4	24
Misc.	.	.	13	.	7	.	.	.	.	**20**	7	7	.	.	13	.	.	13	13	7	15

TABLE B-2

Percentages of Strategy Applications Per Problem - Grade 1

(Highlighted percentages differ from the "All Grades" at the .10 level)

	Phys. Envir.		Content			Teacher/Modify Child				Teach/ Child Relationship			Non-Inter.		Par.	Removal Refer		Other		
	Mod. Setting	Work O. Class	Indiv. or Group Progr. Chg.	Co-op. Games	Direct Instr.	Work Aide	Beh. Mod.	Log. Cons.	Gr. Discuss Rules	Incr. Contact	Positive Interac.	Avoid Crit.	Delib. Non-Interv.	Not a Problem	Parent Involv.	Remove to O. Class	Referral	Kindergar. Progr.	Miscellaneous	Demand Quality	No. of Applications
All Grades	6	0	13	2	9	2	2	2	3	9	9	4	5	1	10	0	7	3	11	1	1596
Grade 1	**8**	0	13	2	10	**3**	**1**	2	3	10	10	4	4	0	**7**	1	7	**0**	**14**	2	670
Health	7	.	14	4	7	.	.	4	4	14	4	**11**	4	.	4	.	11	.	11	.	28
Immature	.	.	15	.	8	**8**	.	.	4	8	8	**12**	12	.	.	.	12	.	15	.	26
Motor	5	.	14	5	10	.	.	5	5	14	10	5	5	.	5	.	5	.	10	5	21
Language	13	.	12	2	5	5	.	2	2	10	7	7	2	.	5	.	12	.	**20**	.	41
Academic	7	.	17	.	5	5	**0**	.	2	7	10	**7**	7	.	7	.	9	.	8	3	56

Table B-2 cont'd

	Phys. Envir.		Content			Teacher/Modify Child				Teach/ Child Relationship			Non-Inter.		Par.	Removal Refer			Other		
	Mod. Setting	Work O. Class	Indiv. or Group Prog. Chg.	Co-op Games	Direct instr.	Work Aide	Beh. Mod.	Log. Cons.	Gr. Discuss Rules	Incr. Contact	Positive Interac.	Avoid Crit.	Delib. Non-Interv.	Not a Problem	Parent Involv.	Remove to O. Class	Referral	Kindergar. Progr.	Miscellaneous	Demand Quality	No. of Applications
Adult Act.	13	.	.	.	13	.	.	.	.	13	25	.	.	.	.	.	.	.	25	.	8
Adult Pass.	.	.	8	.	.	**15**	.	.	.	8	15	.	**15**	.	.	.	8	.	16	8	13
Aggress.	11	.	8	3	13	.	3	3	3	8	13	3	.	.	1	.	3	.	16	3	38
Bossy	**27**	.	9	.	9	.	.	.	9	9	9	.	.	.	.	.	.	.	27	.	11
Leads	22	.	.	.	11	.	.	.	.	11	22	.	.	.	11	11	.	.	11	.	9
Follows	**21**	.	11	5	11	5	.	5	5	5	5	.	.	.	5	5	5	.	11	.	19
Disrupt.	**14**	.	13	1	**15**	3	1	1	5	10	9	3	1	.	9	11	8	.	**19**	.	79
Passive	6	3	18	3	3	6	.	3	3	7	9	6	1	.	**15**	.	6	.	12	.	34

Table B-2 cont'd

	Phys. Envir.		Content		Teacher/Modify Child					Teach/ Child Relationship			Non-Inter.		Par.	Removal Refer			Other		
	Mod. Setting	Work O. Class	Indiv. or Group Progr. Chg.	Co-op. Games	Direct Instr.	Work Aide	Beh. Mod.	Log. Cons.	Gr. Discuss Rules	Incr. Contact	Positive Interac.	Avoid Crit.	Delib. Non-Interv.	Not a Problem	Parent Involv.	Remove to O. Class	Referral	Kindergar. Progr.	Miscellaneous	Demand Quality	No. of Applications
Self Conf.	5	.	12	1	12	2	2	1	2	13	11	4	6	.	8	1	5	.	12	3	100
Initiative	.	.	22	.	11	.	.	5	.	11	22	5	11	.	.	.	11	.	.	11	9
Beh. Rout.	7	.	19	.	7	.	.	.	.	7	**19**	4	.	.	7	**7**	4	.	11	**7**	27
Acad. Rout.	9	.	17	.	12	1	1	.	.	7	12	4	4	.	7	3	6	.	14	.	69
Man. Rout.	5	.	10	.	19	5	5	.	5	10	10	.	**19**	.	.	5	.	.	10	.	21
Unhappy	4	.	9	4	4	.	.	4	4	13	9	4	.	.	13	.	**17**	.	13	.	23
Misc.	12	.	16	4	8	.	.	4	4	8	4	.	4	.	12	.	8	.	16	.	25

TABLE B-3

Percentages of Strategy Applications Per Problem - Grade 2

(Highlighted percentages differ from the "All Grades" at the .10 level)

	Phys. Envir.		Content		Teacher/Modify Child					Teach/ Child Relationship			Non-Inter.		Par.	Removal Refer		Other			
	Mod. Setting	Work O. Class	Indiv. or Group Progr. Chg.	Co-op. Games	Direct Instr.	Work Aide	Beh. Mod.	Log. Cons.	Gr. Discuss Rules	Incr. Contact	Positive Interac.	Avoid Crit.	Delib. Non-Interv.	Not a Problem	Parent Involv.	Remove to O. Class	Referral	Kindergar. Progr.	Miscellaneous	Demand Quality	No. of Applications
All Grades	6	0	13	2	9	2	2	2	3	9	9	4	5	1	10	0	7	3	11	1	1596
Grade 2	**8**	0	12	**0**	7	1	**5**	3	**5**	10	9	3	4	0	**13**	0	**10**	**0**	10	**0**	**484**
Health	7	.	14	.	4	.	4	.	4	14	7	4	.	.	11	.	14	.	14	.	27
Immature	5	.	**28**	.	.	.	.	.	.	14	10	5	.	.	14	.	14	.	10	.	21
Motor	9	.	.	.	9	.	.	.	.	9	9	**18**	.	.	18	.	18	.	9	.	11
Language	13	.	13	.	.	13	.	.	.	13	13	.	.	.	6	.	13	.	19	.	16
Academic	3	.	**22**	.	5	3	2	2	2	7	10	7	3	.	10	.	**15**	.	8	.	59

Table B-3 cont'd

	Phys. Envir.		Content		Teacher/Modify Child					Teach/ Child Relationship			Non-Inter.		Par.	Removal Refer		Other		
	Mod. Setting	Work O. Class	Indiv. or Group Progr. Chg.	Co-op. Games	Direct Instr.	Work Aide	Beh. Mod.	Log. Cons.	Gr. Discuss Rules	Incr. Contact	Positive Interac.	Avoid Crit.	Delib. Non-Interv.	Not a Problem	Parent Involv.	Remove to O. Class	Referral	Kindergar. Progr.	Miscellaneous	Demand Quality	No. of Applications
Adult Act.	11	.	11	.	.	.	**22**	.	11	.	.	.	.	.	22	.	11	.	11	.	9
Adult Pass.	.	.	9	.	9	.	9	.	.	18	9	.	**18**	.	9	.	.	.	18	.	11
Aggress.	12	.	12	.	8	.	**8**	4	**20**	8	4	.	.	.	12	.	.	.	12	.	25
Bossy	.	.	.	.	25	.	.	**25**	.	.	.	.	.	.	.	.	.	.	50	.	4
Leads	.	.	.	.	20	.	.	.	.	20	.	.	.	.	20	.	20	.	20	.	5
Follows	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0
Disrupt.	**15**	.	5	.	13	.	5	2	**11**	9	4	2	2	.	15	.	9	.	9	.	55
Passive	6	.	6	.	6	.	.	.	.	12	9	**12**	12	6	12	.	12	.	6	.	17

Table B-3 cont'd

	Phys. Envir.		Content		Teacher/Modify Child					Teach/ Child Relationship			Non-Inter.		Par.	Removal Refer			Other		
	Mod. Setting	Work O. Class	Indiv. or Group Progr. Chg.	Co-op. Games	Direct Instr.	Work Aide	Beh. Mod.	Log. Cons.	Gr. Discuss Rules	Incr. Contact	Positive Interac.	Avoid Crit.	Delib. Non-Interv.	Not a Problem	Parent Involv.	Remove to O. Class	Referral	Kindergar. Progr.	Miscellaneous	Demand Quality	No. of Applications
Self Conf.	3	.	13	1	.	1	4	4	1	12	**19**	1	9	.	13	.	8	.	9	.	75
Initiative	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0
Beh. Rout.	**13**	.	10	.	10	.	5	5	**8**	10	5	3	.	.	15	.	10	.	8	.	40
Acad. Rout.	10	.	8	.	10	.	**8**	**6**	3	8	8	2	3	.	10	2	10	.	13	.	62
Man. Rout.	.	.	.	.	20	.	20	.	.	20	.	.	20	.	.	.	.	.	20	.	5
Unhappy	11	.	.	.	17	.	.	.	6	6	11	6	6	.	17	6	11	.	6	.	18
Misc.	8	.	13	.	4	.	**8**	4	4	13	13	4	8	.	13	.	.	.	8	.	24

APPENDIX C

PERCENTAGES OF STRATEGY APPLICATIONS PER PROBLEM BY BOARD

TABLE C-1

Percentages of Strategy Applications Per Problem - Board A
(Highlighted percentages differ from the "All Grades" at the .10 level)

	Phys. Envir.		Content		Teacher/Modify Child					Teach/ Child Relationship			Non-Inter.		Par.	Removal Refer		Other			
	Mod. Setting	Work O. Class	Indiv. or Group Progr. Chg.	Co-op. Games	Direct Instr.	Work Aide	Beh. Mod.	Log. Cons.	Gr. Discuss Rules	Incr. Contact	Positive Interac.	Avoid Crit.	Delib. Non-Interv.	Not a Problem	Parent Involv.	Remove to O. Class	Referral	Kindergar. Progr.	Miscellaneous	Demand Quality	No. of Applications
All Boards	6	0	13	2	9	2	2	2	3	9	9	4	5	1	9	1	7	2	11	1	1567
Board A	6	0	**10**	1	10	2	3	1	1	11	7	**7**	4	0	8	0	8	**5**	12	**4**	537
Health	5	.	**18**	.	5	.	.	.	.	9	0	9	.	.	9	.	**18**	5	18	5	22
Immature	3	.	12	.	3	6	.	.	.	15	6	**12**	3	.	6	.	9	**12**	12	.	33
Motor	5	.	5	.	14	5	.	.	.	9	9	5	.	.	14	.	14	5	14	5	22
Language	3	.	6	.	11	.	.	.	3	14	9	9	.	.	6	.	**20**	**6**	14	.	35
Academic	6	.	16	.	6	3	3	.	3	10	3	**10**	3	.	3	.	10	.	16	6	31

Table C-1 cont'd

	Phys. Envir.		Content		Teacher/Modify Child					Teach/ Child Relationship			Non-Inter.		Par.	Removal Refer			Other		
	Mod. Setting	Work O. Class	Indiv. or Group Progr. Chg.	Co-op. Games	Direct Instr.	Work Aide	Beh. Mod.	Log. Cons.	Gr. Discuss Rules	Incr. Contact	Positive Interac.	Avoid Crit.	Delib. Non-Interv.	Not a Problem	Parent Involv.	Remove to O. Class	Referral	Kindergar. Progr.	Miscellaneous	Demand Quality	No. of Applications
Adult Act.	.	.	7	7	13	.	7	.	7	7	13	13	.	.	4	.	.	.	.	13	15
Adult Pass.	4	.	13	4	4	13	4	.	.	8	4	4	8	.	12	.	8	.	17	4	24
Aggress.	12	.	4	.	23	.	.	.	.	8	8	8	.	.	.	.	4	8	12	4	26
Bossy	9	.	9	.	18	.	.	9	9	.	9	9	.	.	11	.	.	.	18	9	11
Leads	11	.	11	.	11	.	.	.	.	22	.	.	.	.	.	.	11	.	22	.	9
Follows	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0
Disrupt.	15	.	5	.	18	.	5	.	.	8	5	3	3	.	13	.	8	3	3	3	39
Passive	7	.	11	2	2	4	.	.	.	9	9	11	9	.	9	.	9	7	.	.	45

Table C-1 cont'd

	Phys. Envir.		Con-tent		Teacher/Modify Child					Teach/ Child Re-lationship			Non-Inter.		Par.	Removal Refer		Other			
	Mod. Setting	Work O. Class	Indiv. or Group Progr. Chg.	Co-op. Games	Direct Instr.	Work Aide	Beh. Mod.	Log. Cons.	Gr. Discuss Rules	Incr. Contact	Positive Interac.	Avoid Crit.	Delib. Non-Interv.	Not a Problem	Parent Involv.	Remove to O. Class	Referral	Kindergarten Progr.	Miscellaneous	Demand Quality	No. of Applications
Self Conf.	.	.	19	.	9	2	4	2	6	11	13	7	6	.	7	.	7	4	7	7	54
Initiative	.	.	33	.	33	.	.	.	.	.	.	.	.	.	33	.	.	.	.	.	3
Beh. Rout.	8	.	12	.	12	.	.	.	.	12	8	8	0	.	8	.	4	8	12	8	25
Acad. Rout.	5	.	11	.	11	1	3	3	.	11	8	7	4	.	9	1	5	4	15	4	75
Man. Rout.	.	.	5	.	11	.	11	0	5	11	5	5	5	.	5	.	5	16	16	.	19
Unhappy	6	.	6	.	13	6	6	0	.	13	3	10	.	.	6	3	13	0	10	3	31
Misc.	6	.	6	6	.	.	11	6	.	6	6	.	17	.	6	.	.	11	6	6	17

TABLE C-2

Percentages of Strategy Applications Per Problem - Board B

(Highlighted percentages differ from the "All Grades" at the .10 level)

	Phys. Envir.		Content			Teacher/Modify Child				Teach/ Child Relationship			Non-Inter.		Par.	Removal Refer		Other		
	Mod. Setting	Work O. Class	Indiv. or Group Progr. Chg.	Co-op. Games	Direct Instr.	Work Aide	Beh. Mod.	Log. Cons.	Gr. Discuss Rules	Incr. Contact	Positive Interac.	Avoid Crit.	Delib. Non-Interv.	Not a Problem	Parent Involv.	Remove to O. Class	Referral	Kindergar. Progr.	Miscellaneous	Demand Quality	No. of Applications
All Boards	6	0	13	2	9	2	2	2	3	9	9	4	5	1	9	1	7	2	11	2	1567
Board B	**10**	0	**17**	**4**	**5**	1	3	3	**5**	**7**	9	**2**	**2**	0	**13**	1	6	**0**	10	**0**	540
Health	10	.	13	3	10	.	3	3	6	6	6	3	3	.	10	.	10	.	13	.	31
Immature	7	.	**27**	0	.	.	.	.	.	13	13	.	7	.	13	.	7	.	13	.	15
Motor	7	.	13	7	7	.	.	7	7	13	7	7	7	.	7	.	7	.	7	.	15
Language	12	.	15	3	16	12	.	3	3	3	6	3	3	.	6	.	9	.	15	.	33
Academic	11	.	21	4	4	7	4	4	4	**0**	.	7	.	.	14	.	7	.	14	.	28

Table C-2 cont'd

	Phys. Envir.		Content			Teacher/Modify Child				Teach/ Child Relationship			Non-Inter.		Par.	Removal Refer			Other		
	Mod. Setting	Work O. Class	Indiv. or Group Progr. Chg.	Co-op. Games	Direct Instr.	Work Aide	Beh. Mod.	Log. Cons.	Gr. Discuss Rules	Incr. Contact	Positive Interac.	Avoid Crit.	Delib. Non-Interv.	Not a Problem	Parent Involv.	Remove to O. Class	Referral	Kindergar. Progr.	Miscellaneous	Demand Quality	No. of Applications
Adult Act.	11	.	22	.	.	.	11	.	11	.	.	.	.	.	**22**	.	11	.	11	.	9
Adult Pass.	.	.	17	.	.	.	.	.	.	17	17	.	.	.	17	.	17	.	17	.	6
Aggress.	**12**	.	12	4	8	.	**6**	4	**10**	8	8	.	**0**	.	12	.	4	.	10	.	49
Bossy	33	.	33	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	33	.	3
Leads	33	.	33	.	.	.	.	.	.	.	.	.	.	.	.	33	.	.	.	.	3
Follows	21	.	11	5	11	5	.	5	5	5	5	.	.	.	5	5	5	.	11	.	19
Disrupt.	**16**	.	4	1	7	1	4	3	**9**	7	9	.	**0**	.	10	1	6	.	.	.	69
Passive	**2**	.	**20**	**9**	4	.	.	2	2	9	15	6	6	.	11	.	6	4	.	.	54

Table C-2 cont'd

	Phys. Envir.		Content			Teacher/Modify Child				Teach/ Child Relationship			Non-Inter.			Par. Removal Refer			Other			
	Mod. Setting	Work O. Class	Indiv. or Group Progr. Chg.	Co-op. Games	Direct Instr.	Work Aide	Beh. Mod.	Log. Cons.	Gr. Discuss Rules	Incr. Contact	Positive Interac.	Avoid Crit.	Delib. Non-Interv.	Not a Problem	Parent Involv.	Remove to O. Class	Referral	Kindergar. Progr.	Miscellaneous	Demand Quality	No. of Applications
Self Conf.	7	.	14	4	5	.	3	3	1	11	12	3	8	.	13	1	5	.	.	.	91
Initiative	.	.	43	.	.	.	.	.	.	.	14	14	.	.	29	.	.	.	.	.	7
Beh. Rout.	15	.	15	4	4	.	7	7	7	7	4	.	.	.	15	4	4	.	7	.	27
Acad. Rout.	15	.	15	.	4	2	8	4	4	4	8	.	.	.	12	4	8	.	13	.	52
Man. Rout.	33	.	33	.	.	.	.	.	.	.	.	.	.	.	.	33	.	.	.	.	3
Unhappy	4	1	15	15	4	.	.	4	4	8	12	.	.	.	23	.	8	.	4	.	26
Misc.	13	.	13	4	3	.	.	4	4	4	13	.	.	.	17	.	4	.	13	.	23

TABLE C-3

Percentages of Strategy Applications Per Problem - Board C

(Highlighted percentages differ from the "All Grades" at the .10 level)

	Phys. Envir.		Content		Teacher/Modify Child					Teach/ Child Relationship			Non-Inter.		Par.	Removal Refer		Other		
	Mod. Setting	Work O. Class	Indiv. or Group Progr. Chg.	Co-op. Games	Direct Instr.	Work Aide	Beh. Mod.	Log. Cons.	Gr. Discuss Rules	Incr. Contact	Positive Interac.	Avoid Crit.	Delib. Non-Interv.	Not a Problem	Parent Involv.	Remove to O. Class	Referral	Kindergar. Progr.	Miscellaneous	Demand Quality	No. of Applications
All Boards	6	0	**13**	2	9	2	2	2	3	9	9	4	5	1	9	1	7	2	11	2	1567
Board C	4	1	**4**	0	11	4	0	2	1	**17**	6	3	**17**	**8**	**3**	0	4	**0**	12	2	126
Health	.	.	.	.	.	.	.	33	.	.	.	.	33	.	33	.	.	.	.	.	3
Immature	.	.	.	.	25	.	.	.	.	.	.	.	75	.	.	.	.	.	.	.	4
Motor	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0
Language	.	.	.	.	.	.	.	.	.	33	33	.	.	.	.	.	.	.	33	.	3
Academic	.	9	18	.	.	9	.	.	.	9	.	18	**27**	.	.	.	9	.	.	.	11

Table C-3 cont'd

	Phys. Envir.		Con-tent		Teacher/Modify Child					Teach/ Child Re-lationship			Non-Inter.		Par.	Removal Refer			Other		
	Mod. Setting	Work O. Class	Indiv. or Group Progr. Chg.	Co-op. Games	Direct Instr.	Work Aide	Beh. Mod.	Log. Cons.	Gr. Discuss Rules	Incr. Contact	Positive Interac.	Avoid Crit.	Delib. Non-Interv.	Not a Problem	Parent Involv.	Remove to O. Class	Referral	Kindergar. Progr.	Miscellaneous	Demand Quality	No. of Applications
Adult Act.	9	.	18	.	9	9	.	.	.	9	.	18	9	.	.	.	9	.	9	.	11
Adult Pass.	.	.	.	.	17	17	.	.	.	17	17	.	17	.	.	.	.	.	17	.	6
Aggress.	20	.	20	.	20	.	.	.	.	.	.	.	20	.	.	.	20	.	.	.	5
Bossy	20	.	.	.	20	.	.	.	.	20	.	.	.	.	.	.	.	.	20	.	5
Leads	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0
Follows	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0
Disrupt.	6	.	.	.	19	.	.	6	.	19	.	.	6	13	6	.	6	.	19	.	16
Passive	.	.	.	.	.	.	.	.	.	13	.	.	13	63	.	.	.	.	13	.	8

Table C-3 cont'd

	Phys. Envir.		Con-tent		Teacher/Modify Child					Teach/ Child Re-lationship			Non-Inter.		Par.	Removal Refer			Other		
	Mod. Setting	Work O. Class	Indiv. or Group Progr. Chg.	Co-op. Games	Direct Instr.	Work Aide	Beh. Mod.	Log. Cons.	Gr. Discuss Rules	Incr. Contact	Positive Interac.	Avoid Crit.	Delib. Non-Interv.	Not a Problem	Parent Involv.	Remove to O. Class	Referral	Kindergar. Progr.	Miscellaneous	Demand Quality	No. of Applications
Self Conf.	5	.	.	.	14	5	.	.	.	23	9	.	14	9	5	.	.	.	14	5	22
Initiative	.	.	13	.	.	.	.	13	.	13	13	.	25	13	.	.	.	.	.	13	8
Beh. Rout.	.	.	.	.	.	.	.	.	.	33	33	.	.	.	.	.	.	.	.	33	3
Acad. Rout.	.	.	.	.	14	.	.	.	.	29	14	.	14	.	.	.	.	.	29	.	7
Man. Rout.	.	.	.	.	20	10	.	.	.	20	10	.	20	.	.	.	.	.	20	.	10
Unhappy	.	.	.	.	.	.	.	.	.	.	.	.	100	.	.	.	.	.	.	.	1
Misc.	.	.	.	.	.	.	.	.	.	33	.	.	.	33	.	.	33	.	.	.	3

TABLE C-4

Percentages of Strategy Applications Per Problem - Board D

(Highlighted percentages differ from the "All Grades" at the .10 level)

	Phys. Envir.		Content		Teacher/Modify Child					Teach/ Child Relationship			Non-Inter.		Par.	Removal Refer		Other			
	Mod. Setting	Work O. Class	Indiv. or Group Progr. Chg.	Co-op. Games	Direct Instr.	Work Aide	Beh. Mod.	Log. Cons.	Gr. Discuss Rules	Incr. Contact	Positive Interac.	Avoid Crit.	Delib. Non-Interv.	Not a Problem	Parent Involv.	Remove to O. Class	Referral	Kindergar. Progr.	Miscellaneous	Demand Quality	No. of Applications
All Boards	6	0	13	2	9	2	2	2	3	9	4	4	5	1	9	1	7	2	11	2	1567
Board D	**2**	**1**	10	**0**	10	2	**0**	1	2	8	**13**	4	**8**	0	9	0	9	2	11	**0**	**366**
Health	6	.	19	.	6	.	.	.	.	**25**	6	6	.	.	6	.	13	.	13	.	16
Immature	.	.	14	.	5	5	.	.	5	5	14	**14**	9	.	5	.	14	.	14	.	22
Motor	.	.	.	.	.	.	.	.	.	.	.	33	.	.	33	.	33	.	.	.	3
Language	.	.	20	.	20	.	.	.	.	.	20	.	.	.	.	.	**40**	.	.	.	5
Academic	2	.	21	.	6	2	.	.	.	9	**17**	2	4	.	11	.	**17**	.	9	.	47

Table C-4 cont'd

	Phys. Envir.		Content		Teacher/Modify Child					Teach/ Child Relationship			Non-Inter.		Par.	Removal Refer			Other		
	Mod. Setting	Work O. Class	Indiv. or Group Progr. Chg.	Co-op. Games	Direct Instr.	Work Aide	Beh. Mod.	Log. Cons.	Gr. Discuss Rules	Incr. Contact	Positive Interac.	Avoid Crit.	Delib. Non-Interv.	Not a Problem	Parent Involv.	Remove to O. Class	Referral	Kindergar. Progr.	Miscellaneous	Demand Quality	No. of Applications
Adult Act.	.	.	.	.	.	.	.	.	.	.	50	.	.	.	.	.	.	.	50	.	2
Adult Pass.	.	.	.	.	.	.	.	.	.	.	33	.	66	.	.	.	.	.	.	.	3
Aggress.	.	.	13	.	13	.	.	13	13	.	12	.	.	.	13	.	.	.	25	.	8
Bossy	.	.	.	.	20	.	.	.	.		40	.	.	.	20	.	.	.	.	20	5
Leads	.	.	17	.	33	.	.	17	.	.	.	.	.	.	17	.	.	.	17	.	6
Follows	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0
Disrupt.	4	.	13	.	18	2	.	2	7	7	5	4	4	.	11	.	9	.	15	.	55
Passive	.	8	11	.	0	8	.	.	.	6	17	6	11	.	11	.	6	11	3	.	36

Table C-4 cont'd

	Phys. Envir.		Content			Teacher/Modify Child					Teach/ Child Relationship			Non-Inter.		Par. Removal Refer				Other	
	Mod. Setting	Work O. Class	Indiv. or Group Progr. Chg.	Co-op. Games	Direct Instr.	Work Aide	Beh. Mod.	Log. Cons.	Gr. Discuss Rules	Incr. Contact	Positive Interac.	Avoid Crit.	Delib. Non-Interv.	Not a Problem	Parent Involv.	Remove to O. Class	Referral	Kindergar. Progr.	Miscellaneous	Demand Quality	No. of Applications
Self Conf.	0	.	19	2	5	2	.	.	2	8	19	2	14	.	9	.	5	5	11	.	64
Initiative	.	.	27	.	9	.	.	.	.	.	18	.	9	.	.	.	9	9	18	.	11
Beh. Rout.	4	.	18	.	18	.	.	4	4	7	11	4	.	.	11	.	11	.	11	.	28
Acad. Rout.	4	.	15	.	15	.	.	.	.	8	15	4	12	.	8	.	12	.	8	.	26
Man. Rout.	.	.	23	.	31	.	.	8	.	.	.	.	15	.	.	.	.	.	23	.	13
Unhappy	.	.	.	.	14	.	.	.	14	14	14	.	14	.	.	.	.	14	14	.	7
Misc.	.	.	50	.	.	.	.	.	.	.	.	.	25	.	.	.	.	.	25	.	4